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April, 1950

EDISON ELECTRIC INSTITUTE BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

January, 1949-1950

SOURCE AND DISPOSAL OF ENERGY—MONTH OF JANUARY

	1950	1949	%
GENERATION* (Net)			
By Fuel Burning Plants	18,537,463,000	17,803,133,000	+ 4.1
By Water Power Plants	8,333,839,000	7,767,037,000	+ 7.3
Total Generation	**26,871,302,000**	**25,570,170,000**	+ 5.1
Add—Net Imports Over International Boundaries	61,200,000	100,500,000	−39.1
Less—Company Use	136,274,000	131,797,000	+ 3.4
Less—Energy Used by Producer	484,822,000	410,521,000	+18.1
Net Energy for Distribution	**26,311,406,000**	**25,128,352,000**	+ 4.7
Losses and Unaccounted for	3,368,168,000	3,330,434,000	+ 1.1
Sales to Ultimate Customers	**22,943,238,000**	**21,797,918,000**	+ 5.3

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of January 31st			
Residential or Domestic	35,732,545	33,693,650	+ 6.1
Rural (Distinct Rural Rates)	1,539,441	1,674,888	− 8.1‡
Commercial or Industrial:			
Small Light and Power	5,333,048	5,134,401	+ 3.9
Large Light and Power	226,107	225,334	+ 0.3
Other Customers	149,165	142,370	+ 4.8
Total Ultimate Customers	**42,980,306**	**40,870,643**	+ 5.2
KILOWATTHOUR SALES—During Month of January			
Residential or Domestic	6,276,344,000	5,424,824,000	+15.7
Rural (Distinct Rural Rates)	408,756,000	459,075,000	−11.0‡
Commercial or Industrial:			
Small Light and Power	4,180,747,000	3,833,492,000	+ 9.1
Large Light and Power	10,602,029,000	10,613,175,000	− 0.1
Street and Highway Lighting	287,477,000	266,118,000	+ 8.0
Other Public Authorities	602,081,000	560,174,000	+ 7.5
Railways and Railroads:			
Street and Interurban Railways	321,238,000	358,683,000	−10.4
Electrified Steam Railroads	215,157,000	236,413,000	− 9.0
Interdepartmental	49,409,000	45,964,000	+ 7.5
Total to Ultimate Customers	**22,943,238,000**	**21,797,918,000**	+ 5.3
Revenue from Ultimate Customers	**$425,325,400**	**$398,457,000**	+ 6.7

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 months ended January 31st			
Kilowatthours per Customer	1,700	1,575	+ 7.9
Average Annual Bill	$50.00	$47.25	+ 5.8
Revenue per Kilowatthour	2.94¢	3.00¢	− 2.0

(*) By Courtesy of the Federal Power Commission.

(‡) Negative Percentage Due to Reclassification.

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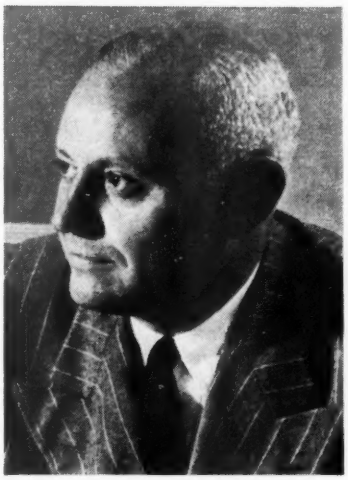
EDISON ELECTRIC INSTITUTE BULLETIN

Volume 18 APRIL, 1950 No. 4

A Program of Important Events at Atlantic City When The 18th Annual Convention Meets

PUTTING particular emphasis on what must be done today to prepare for tomorrow, fifteen speakers of high reputation and achievement in their chosen fields will address the delegates at EEI's 18th Annual Convention, June 5 to 7—a mid-century event that is expected to draw to Atlantic City Convention-goers in unusually large numbers from all over the United States and from as far away as Hawaii.

With "how we can turn today's lessons to good account" as the underlying theme, the five general sessions of the Convention will include discussions of the electric utility of tomorrow, organization and personnel development, the world and national threats of socialization and ways of meeting them, resource development, farm electrification, company relations with REA co-ops, customer, investor and employee relations, the effect of merchandising programs on the load curve, and the coal industry during the next five years.



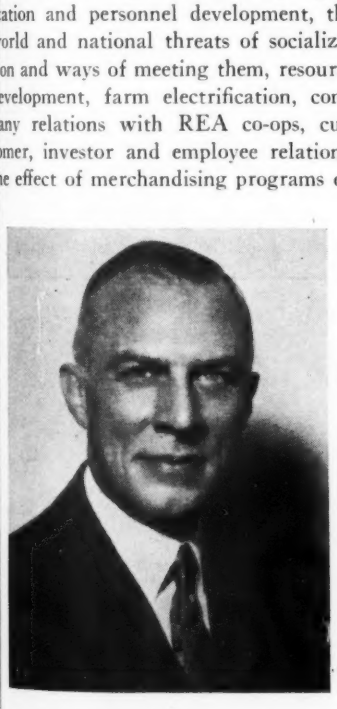
ELMER L. LINDSETH
President of the Edison Electric Institute

The first, second, and fifth general sessions will be held in the Atlantic City Convention Hall. EEI President, Elmer L. Lindseth will preside at the first and fifth meetings, while EEI Vice President L. V. Sutton will conduct the second general session. The third and fourth general sessions will be held concurrently in the Chalfonte-Haddon Hall, with two former Presidents of the Institute as presiding officers — Ernest R. Acker, President of Central Hudson Gas & Electric Corp., and Grover C. Neff, President of Wisconsin Power and Light Company.

In addition to the promising business program of the Convention, moments of relaxation for delegates and guests will be also offered. On Tuesday evening, June 6, Edison Electric Institute, General Electric Company, and Westinghouse Electric Corporation will be joint hosts at a cocktail party and supper. At noon on Tuesday, the ladies at the Convention will be guests of Hotpoint, Inc., for luncheon.

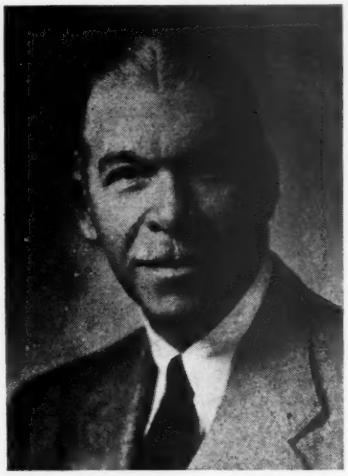
Delegates may begin registration at the Convention on Sunday, June 4th, at 12 noon in the main lobby of the Hotel Traymore. Registration facilities will be provided on succeeding days at the Traymore, the Convention Hall, and the Chalfonte-Haddon Hall, in accordance with a schedule appearing elsewhere in this article.

Marking the formal beginning of the Convention's business, President Lindseth will give the opening address on Monday afternoon. Succeeding speakers will include Curtis E. Calder, Chairman of the Board, Electric Bond and Share Co., Ebasco Services Inc.; Ralph J. Cordiner, Executive Vice President, General Electric Company; James E. McCarthy, Dean, College of Commerce, University of Notre Dame; W. C.



CURTIS E. CALDER
Chairman of the Board, Electric Bond and Share Co.

RALPH J. CORDINER
Executive Vice President, General Electric Co.

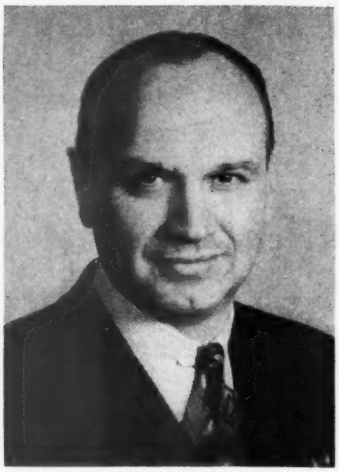


PROF. JAMES E. MCCARTHY

Dean, College of Commerce, University of Notre Dame

W. C. MULLENDORE

President, Southern California Edison Co.



W. E. KNOX

President, Westinghouse Electric International Co.

Mullendore, President, Southern California Edison Company; W. E. Knox, President, Westinghouse Electric International Company; Chas. E. Oakes, President, Pennsylvania Power and Light Company; W. E. Wood, Executive Vice President, Virginia Electric and Power Company; Fred A. Compton, Vice President, The Detroit Edison Company; Kent Leavitt, Past President, The National Association of Soil Conservation Districts; H. W. Voorhees, President, New Jersey Farm Bureau, and Director, American Farm Bureau Federation; Harllee Branch, Jr., Vice President and General Manager, Georgia Power Company; George E. Whitwell, Vice President, Philadelphia Electric Company; George H. Love, President, Pittsburgh Consolidation Coal Company, Inc.; and Walter Geist, President, Allis-Chalmers Manufacturing Company.

First General Session

Delegates arriving on Monday morning, June 5 will be able to orient themselves in Atlantic City and complete their registration before the first general session begins at 2:30 in the afternoon.

As President of the Edison Electric Institute for the past year, Mr. Lindseth has conferred with scores of leaders in the electric light and power business and with hundreds of leaders in other businesses and industries, in education, labor, government and other fields. Out of this experience he will report to the convention on the state of the industry, and point out ways and means of meeting successfully the problems that confront it.

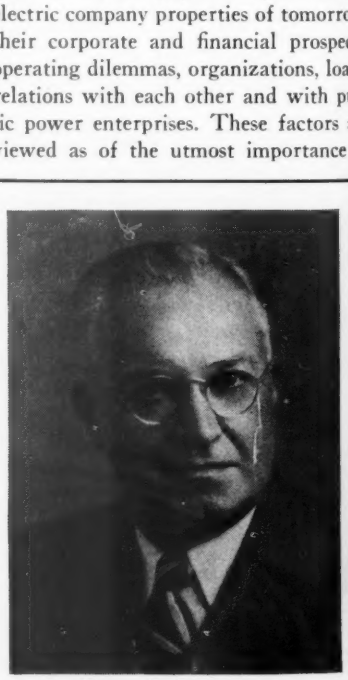
Calling on the utilities to raise their sights from immediate problems to envision the future place and function of the electric companies in the nation, Curtis E. Calder, Chairman of the Board, Electric Bond and Share Company, Ebasco Services Inc., will discuss "The Electric Utility of Tomorrow." Among the matters Mr. Calder will take up are the physical aspects of the electric company properties of tomorrow, their corporate and financial prospects, operating dilemmas, organizations, loads, relations with each other and with public power enterprises. These factors are viewed as of the utmost importance in

CHAS. E. OAKES

President, Pennsylvania Power and Light Co.

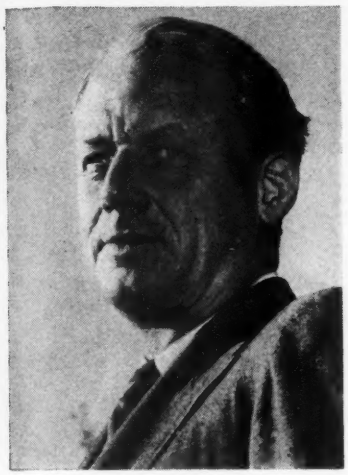
W. E. WOOD

Executive Vice President, Virginia Electric and Power Co.

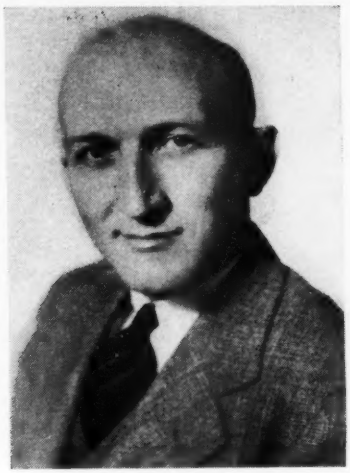


FRED A. COMPTON

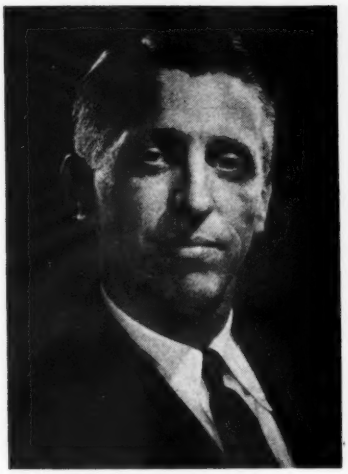
Vice President, The Detroit Edison Co.



KENT LEAVITT
Past President, The National Association of Soil Conservation Districts



H. W. VOORHEES
President, New Jersey Farm Bureau and Director, American Farm Bureau Federation



HARLLEE BRANCH, JR.
Vice President and General Manager, Georgia Power Co.

charting the course of the electric industry.

To conclude the Convention's first session, Ralph J. Cordiner, Executive Vice President, General Electric Company, will discuss "Industry's New Challenge: Developing Tomorrow's Leadership." Mr. Cordiner sees problems of mounting complexity, not only for industry, but for the whole world as well. He will offer some definite steps which should be taken in training men to meet these problems, pointing out that developing tomorrow's leadership is both a matter of self-interest to industry for its own survival and an opportunity to provide guidance to a confused world.

Second General Session

"Is This Thing Worth Saving?" is the question which James E. McCarthy, Dean, College of Commerce, University of Notre Dame, will ask to start off the second general session on Tuesday morning at ten o'clock. Emphasizing that free enterprise must be saved, Dean McCarthy will point out that it is a force for unity, that all Americans are workers and dependent one on the other. Dean McCarthy brands as false the idea that this nation is composed of groups with diametrically opposed interests, and he believes that those who promote this idea act as saboteurs, aiding alien ideologists.

W. C. Mullendore, President of Southern California Edison Company, will continue in a similar vein, with the query, "Who Is Getting Hurt?" He will discuss the various ways in which all the American people are suffering by the deeper advance into Socialism. Noting that both material and spiritual impoverishment is taking place, he will remind the delegates that the business manager who sees the road ahead has a primary responsibility for making the public aware of the increasing dangers to individual freedom.

To conclude the second session, W. E. Knox, President, Westinghouse Electric International Company, will draw on what he has learned during the past few years as a result of meetings with the heads of many nations and from his company's extensive business activities in foreign countries. In his speech, titled

GEORGE E. WHITWELL
Vice President, Philadelphia Electric Co.

GEORGE H. LOVE
President, Pittsburgh Consolidation Coal Co., Inc.

WALTER GEIST
President, Allis-Chalmers Manufacturing Co.

ERNEST R. ACKER
Past President, EEI

GROVER C. NEFF
Past President, EEI

L. V. SUTTON
Vice President, EEI

"Where in the World Are We Going?" Mr. Knox will offer evidence that the competition between Communism and Democracy for world leadership is of more importance to the industry than the expansion program or the "A" bomb.

Concurrent General Sessions

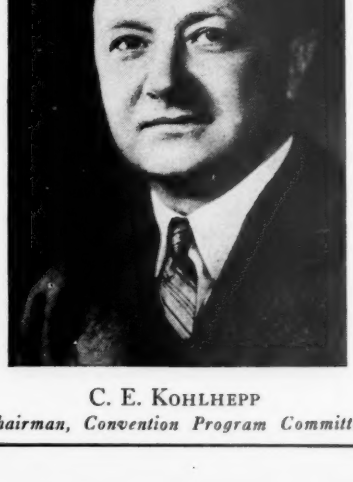
Two general sessions will take place concurrently in the Chalfonte-Haddon Hall on Tuesday afternoon beginning at 2:30. One session, chiefly concerned with customer, investor and employee relations, and the effect of merchandising programs on the load curve, will be held in the Rutland Room. The other session, dealing with resource development and farm electrification problems, will be held in the Vernon Room.

Customer, Investor and Employee Relations

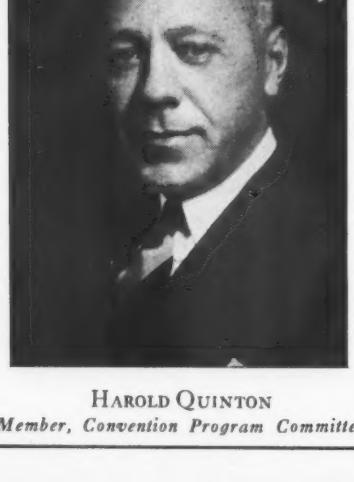
Ernest R. Acker, EEI President during 1948-1949, will preside over the meeting in the Rutland Room, and will introduce as speakers Chas. E. Oakes, President, Pennsylvania Power and Light Company, who preceded Mr. Acker as Institute President; W. E. Wood, Executive Vice President, Virginia Electric and Power Company; and Fred A. Compton, Vice President, The Detroit Edison Company.

In examining ways and means by which widespread ownership of the electric industry may be increased, Mr. Oakes will stress the fact that the American citizen who is an equity owner in American business is the best advocate of the American economic philosophy. He will point out that when an electric customer has also become an investor in his electric company he is at once an electric company advocate and an understanding and constructive critic.

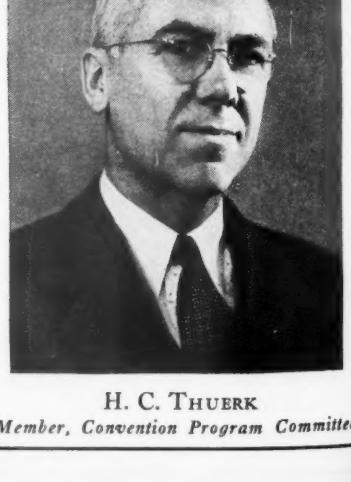
"Your employees want to help you," Mr. Wood will tell the delegates in his address. He will discuss a "laboratory test" of the plan under which information is now flowing freely and regularly between management and employees concerning their company's policies and affairs, all with very satisfactory results. Employees do things more spontaneously and effectively when they are convinced that it is desirable to do them than simply because they are told to do them. Mr. Wood will remind his listeners.



C. E. KOHLHEPP
Chairman, Convention Program Committee



HAROLD QUINTON
Member, Convention Program Committee



H. C. THUERK
Member, Convention Program Committee

Mr. Compton will call attention to the effect of merchandising programs on the load curve, a consideration of importance, with many companies returning to the active promotion of many appliances. He will give emphasis to the problems of load diversities, load factors and the relationship of certain appliances to system peak.

Resource Development and Farm Electrification

Grover C. Neff, EEI President during 1946-1947, will preside over the Tuesday afternoon concurrent general session in the Vernon Room of the Chalfonte-Haddon Hall, where problems of resource development and farm electrification will be discussed.

First speaker at this session will be Kent Leavitt, Past President of The National Association of Soil Conservation Districts, who will discuss the electric industry's stake in the orderly development of our natural resources. Mr. Leavitt feels that Soil Conservation Districts are most effective in this development and of great assistance to the utility industry as well. This type of conservation activity, as well as that exemplified by the Muskingum Conservancy District in Ohio, with its unique financing and local control, is viewed as being applicable to three-fourths of the nation's watersheds.

H. W. Voorhees, President, New Jersey Farm Bureau, and Director, American Farm Bureau Federation, will evaluate the role of electricity in American agricultural progress. In his address, Mr. Voorhees will provide an insight on what farmers and the American Farm Bureau Federation are thinking, what their problems are—and, of particular interest to the electric industry, how they feel about rural electrification. Emphasis will be placed on what electric companies are doing of greatest help to farmers, and how they can be more helpful.

In discussing the "mutual interests of utility companies and REA co-ops," Harllee Branch, Jr., Vice President and General Manager, Georgia Power Company, will emphasize that company management and co-op management have many common problems, views and aspirations. The values in long-continuing sound relations among electric companies and co-ops will be pointed up by the record of such relationships in the state of Georgia.

B. L. ENGLAND
President, Atlantic City Electric Company

Fifth General Session

The concluding session of the Convention will get underway in the Convention Hall at 10 a.m. on Wednesday, June 7 with the report of the Prize Awards Committee, as presented by its new Chairman, George E. Whitwell, Vice President of Philadelphia Electric Company. In his report, Mr. Whitwell will review the awards made at the April Sales Conference in Chicago—the Planned Lighting Awards, the Laura McCall Awards, the Thomas W. Martin Award, and the George A. Hughes Awards. He will then conduct the presentation of the Claude L. Matthews Valor Award and the Reddy Kilowatt Annual Report Contest Award, and commend the winners of the Safety Achievement Award for 1949.

Following this recognition of achievement within the electric industry, George H. Love, President of Pittsburgh Consolidation Coal Company, Inc., will discuss the situation of an industry importantly linked with our own.

In his address, "The Coal Industry During the Next Five Years," Mr. Love sees two perfectly clear alternatives: (1) A modern efficient industry continually increasing productivity in successful efforts to lower coal costs; or (2) A stumbling, backward business with increasing costs, controlled production, government regulation, and finally, nationalization. Mr. Love's question is: In which of these two directions will the utility industry and other major coal consumers exert their important influence?

Walter Geist, President of Allis-Chalmers Manufacturing Company, will bring the Convention to a close with his address, "Profits That Can't Be Measured," in which he will point out that experiments which trend toward socialization are self-contradictory. Their goal is ostensibly humanitarian, according to Mr. Geist, but the methods involved weaken our social and economic structure, working against progress and against everyone's enjoyment of its fruits. Noting that here is an opportunity for those in industry to take their work in the field of human understanding and apply it to the strengthening of the American Way, Mr. Geist will ask if the challenge will be accepted.

Entertainment Features

Following the business sessions on Tuesday, Convention delegates and guests are invited to enjoy a relaxing evening at a cocktail party and supper arranged by Edison Electric Institute, General Electric Company, and Westinghouse Electric Corporation as joint hosts. The cocktail party will be held in the main arena of the Convention Hall Auditorium from 5 to 7 p. m. A huge staircase will lead from the Auditorium to the Convention Hall Ballroom for a supper at 7 o'clock. Formal presentation of the Charles A. Coffin Award will be made after the supper; the Westinghouse Choral Society will offer special entertainment; and immediately following, an orchestra will provide music for dancing in the Ballroom.

Another Tuesday event is planned especially for the ladies. At 12:30 p. m., the ladies at the Convention will be guests of Hotpoint, Inc., for luncheon in the American Room of the Hotel Traymore. Plans for special entertainment features have not yet reached the stage where they may be divulged in detail, but the ladies are assured of a very pleasant afternoon.

It is emphasized that Convention badges and buttons will be essential for admission to the general sessions of the Convention and to the ladies' luncheon. Badges, buttons and supper tickets will be obtainable only at the registration desk. Supper tickets will be required for identification for entrance to the cocktail party and supper on Tuesday evening. Tickets must be shown at the entrance gates to the Auditorium, but will be collected by the waiters at the supper tables.

Delegates and guests who are plan-

(*Continued on page* 124)

PROGRAM OF THE EIGHTEENTH ANNUAL CONVENTION EDISON ELECTRIC INSTITUTE

Atlantic City, N. J., June 5-7, 1950

FIRST GENERAL SESSION

Monday, June 5, 2:30 P.M.

E. L. LINDSETH, President of the Institute, Presiding

The President's Address
ELMER L. LINDSETH, *President*
Edison Electric Institute

The Electric Utility of Tomorrow
CURTIS E. CALDER, *Chairman of the Board*
Electric Bond and Share Company
Ebasco Services Inc., New York, N. Y.

Industry's New Challenge: Developing Tomorrow's Leadership
RALPH J. CORDINER, *Executive Vice President*
General Electric Company, New York, N. Y.

SECOND GENERAL SESSION

Tuesday, June 6, 10:00 A.M.

L. V. SUTTON, Vice President of the Institute, Presiding

Is This Thing Worth Saving?
PROF. JAMES E. MCCARTHY, *Dean*
College of Commerce, University of Notre Dame, Notre Dame, Ind.

Who Is Getting Hurt?
W. C. MULLENDORE, *President*
Southern California Edison Company, Los Angeles, Calif.

Where In The World Are We Going?
W. E. KNOX, *President*
Westinghouse Electric International Company, New York, N. Y.

CONCURRENT GENERAL SESSION

Tuesday, June 6, 2:30 P.M.

E. R. ACKER, Past President of the Institute, Presiding

The Customer, The Investor and You
CHAS. E. OAKES, *President*
Pennsylvania Power and Light Company, Allentown, Pa.

Your Employees Want to Help You
W. E. WOOD, *Executive Vice President*
Virginia Electric and Power Company, Richmond, Va.

Effect of Merchandising Programs on the Load Curve
FRED A. COMPTON, *Vice President*
The Detroit Edison Company, Detroit, Mich.

CONCURRENT GENERAL SESSION

Tuesday, June 6, 2:30 P.M.

G. C. NEFF, Past President of the Institute, Presiding

How Soil Conservation Districts Affect the Public Utility Industry
KENT LEAVITT, *Past President*
The National Association of Soil Conservation Districts, Millbrook, N. Y.

Electricity in American Agricultural Progress
H. W. VOORHEES, *President*
New Jersey Farm Bureau, and
Director, American Farm Bureau Federation, Trenton, N. J.

Mutual Interests of Utility Companies and REA Co-Ops
HARLLEE BRANCH, JR., *Vice President and General Manager*
Georgia Power Company, Atlanta, Ga.

FIFTH GENERAL SESSION

Wednesday, June 7, 10:00 A.M.

E. L. LINDSETH, President of the Institute, Presiding

Report of Prize Awards Committee
GEORGE E. WHITWELL, *Vice President*
Philadelphia Electric Company, Philadelphia, Pa.

The Coal Industry During the Next Five Years
GEORGE H. LOVE, *President*
Pittsburgh Consolidation Coal Company, Inc., Pittsburgh, Pa.

Profits That Can't Be Measured
WALTER GEIST, *President*
Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

If You Don't Watch Out . . .
Preview of workprint of technicolor cartoon sound movie short produced by John Sutherland, for N. W. Ayer & Son, Inc., and various client electric companies.

Aggressive Selling of Electric Service and Our Way of Life Urged at Sales Conference

Large Attendance at 16th Annual EEI Sales Conference Hears 57 Addresses and Presentations

"ALL over the country there are evidences that in 1950 the trend among electric companies is toward more aggressive selling. Despite the great increase in use of electricity during the past decade, our unsold markets are still growing. Our sales opportunities are greater because of our improved competitive position, and because new electric applications are developed faster than old ones come into general use. . . . There is a trend back to utility merchandising. More electric companies are returning to full or partial merchandising than are discontinuing appliance selling."

These thoughts voiced by Harry Restofski, West Penn Power Co., Chairman of the Commercial Division General Committee, in his opening remarks, made a fitting theme for the 16th Annual EEI Sales Conference held at the Edgewater Beach Hotel, Chicago, Apr. 3rd through the 6th.

During the four-day conference, speakers stressed the industry's need for more aggressive selling and emphasized the urgency of selling the private enterprise system, which has contributed so much to the industry's remarkable record of growth.

Sales Conference Highlights

Among the highlights of the Sales Conference were the addresses of Elmer L. Lindseth, president of the Edison Electric Institute and The Cleveland Electric Illuminating Company, at the closing luncheon session and L. L. Rummell, Dean of Agriculture, Ohio State University, at the farm luncheon; a dramatic presentation, "Light Up Tomorrow," by the National Promotional Committee of the Planned Lighting Program; various talks on the all-electric kitchen and the announcements of the Planned Lighting Awards and the 1949 Thomas W. Martin, Laura McCall and George A. Hughes awards, by George E. Whitwell, chairman of the EEI Prize Awards Committee and vice president, Philadelphia Electric Company.

Following the opening remarks of Mr. Restofski at the General Sessions which were held on Tuesday and Wednesday, April 5 and 6, the attending delegates heard Dr. Ralph Robey, chief economist of the National Association of Manufacturers, discuss the long and short term outlook. Dr. Robey told those in attendance that business should remain at its present high level for the next six months, but this does not indicate that a drop at the end of that period is expected.

Building Farm Load

Grover C. Neff, president, Wisconsin Power and Light Co., then talked on building farm load. Mr. Neff said, "for many electric companies the average use per farm customer has more than doubled during the past 10 years. In 1940, the average use by the farm customers of Wisconsin Power and Light Co. was about 1200 kwhr. In 1949, it was about 3100 kwhr or an increase of 160 per cent. If the average use per customer increases as fast during the next five years as it did during 1948 and 1949, our farm customer's average use in 1955 will be approximately 5700 kwhr per customer."

Mr. Neff concluded his remarks by reminding the audience that the industry is dealing with a form of power which is relatively new to the great agricultural industry. "A vast amount of educational work is necessary, and we should make use of every facility at hand to speed up the farmers' understanding and appreciation of electric service. You men responsible for sales in the various utility companies occupy a very important position in this great educational development. The better you do your job, the faster farmers will receive increased benefits from the use of central station electric service."

Jack Lacy, Lacy Sales Institute, concluded the morning session with an entertaining talk entitled, "What Makes a Salesman Tick?"

Leading off the afternoon session was a dramatic presentation, "Light Up Tomorrow," sponsored by the Planned Lighting National Promotion Committee of which Joseph S. Schuchert, Duquesne Light Co., is chairman. The skit showed many of the Planned Lighting Program sales and educational aids as they are used by utility sales staffs, and their effect on typical prospects in the store, school and residential markets. It presented to the audience of electric company sales executives how the Planned Lighting Program materials can be used effectively to assist company and electrical industry sales forces at every step of the lighting sale.

Some of the problems involved in complete electric house heating were described by Fred A. Compton, The Detroit Edison Co. He told of what the industry is doing about electric house heating, described the Detroit Edison Electric House Heating Study and concluded with a discussion of the industry's responsibility toward the electric house heating load.

Concluding the session, Prof. Clifton L. Ganus spoke on the "History of the American Way," a study of the free enterprise system, and compared it with various socialistic attempts both in this country and abroad.

1949 Prize Awards Presentation

The presentation of the 1949 prize awards was made on Thursday, April 6, by George E. Whitwell, vice president, Philadelphia Electric Co., and chairman of the EEI Prize Awards Committee, through the medium of a skit which involved actors depicting the 1925 era and illustrating the great strides made by the electric industry in the past 25 years.

The first of the Planned Lighting Awards, the Combined Award, consisting of an engraved bronze plaque and $500 in cash, was presented to the Houston Lighting and Power Co. for their outstanding accomplishments in lighting education and sales promotion in the residential, commercial and industrial lighting markets during 1949. The British Columbia Electric Railway Company, Ltd., of Vancouver, B. C., Canada, received the Planned Lighting Residential Award. The Duquesne

Presentation of Laura McCall and George A. Hughes Awards at EEI Sales Conference

EDNA A. STEPHANY (right), Pennsylvania Power and Light Co., accepting the Division A, Laura McCall Award for her company, presented by Camille Davied, *McCall's Magazine*

VIRGINIA PIERSON (right), accepts the Laura McCall Award, Division B, for the Pennsylvania Power Co., presented by Miss Davied, *McCall's Magazine*

MURIEL KODIS (right), Arizona Edison Co., accepts one of the three Division C, McCall Awards, presented by Miss Davied, *McCall's Magazine*

MARJORIE HUME (right), San Diego Gas & Electric Co. accepts the second of the three equal Division C, McCall Awards, presented by Miss Davied

MARGARET BUCHAN (right), accepts the third Division C, McCall Award, for the Indiana & Michigan Electric Co., presented by Miss Davied

H. E. CARNEY (right), accepts first prize in Class V of the George A. Hughes Awards, for Toledo Edison Co., presented by D. R. Anneaux, Hotpoint, Inc.

J. E. MULLER (center), West Penn Power Co., accepts the two first prizes won by his company in Classes II and III of the George A. Hughes Awards, presented by Dwight R. Anneaux, Hotpoint, Inc. (right) as G. E. Whitwell, Chairman, EEI Prize Awards Committee, looks on

H. H. BRENAN (center) accepts two first prizes in Classes I and IV, George A. Hughes Awards for the Pennsylvania Power & Light Co., in the presentation made by Mr. Anneaux, Hotpoint, Inc. (left); at right, G. E. Whitwell, Chairman, EEI Prize Awards Committee

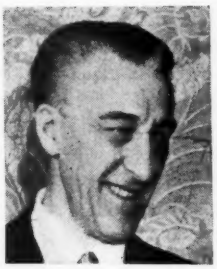
Planned Lighting Award Winners for 1949 Who Received Prizes at EEI Sales Conference

J. F. GASKILL, Philadelphia Electric Co. — Industrial

E. P. WERLEY, Pennsylvania Power & Light Co.—Commercial

LEE TAYLOR, The Detroit Edison Co.—Commercial

J. S. SCHUCHERT, Duquesne Light Co.—Commercial



H. N. WALTERS, British Columbia Electric Railway Co.—Residential

FRANK M. AUSTIN (left), accepts the Combined Award for Commercial, Residential and Industrial Markets of the Planned Lighting Awards for the Houston Lighting & Power Co., presented by Harry Restofski, Chairman, Commercial Division General Committee, EEI

The Thomas W. Martin Rural Electrification Award for 1949 is presented to R. T. JONES (right), representing the Pennsylvania Power & Light Co., J. K. Lester, Manager, Rural & Towns Division, Alabama Power Co. (left) made the award at the EEI Sales Conference in Chicago

Light Co., Pittsburgh, Pa.; the Pennsylvania Power & Light Co., Allentown, Pa., and The Detroit Edison Co., Mich., received three equal prizes which are awarded annually for the best promotional work in Commercial Lighting. The Philadelphia Electric Co. received the Industrial Award for its promotional work in the field of industrial lighting. The five single awards in the above categories consisted of a handsome plaque and $150 in cash.

The Laura McCall Awards which are offered by *McCall's Magazine*, in memory of its founder and to give public acknowledgment to those outstanding in home service work were presented to Miss Edna A. Stephany, Home Service Director, Pennsylvania Power & Light Co., and to Miss Virginia Pierson, Home Service Director, Pennsylvania Power Co., New Castle, Pa., in the Divisions A and B, respectively. The awards consisted of a bronze plaque and $200 in cash, to each winner. The three equal awards in Division C, given to individual members of electric companies' home service departments for ideas that contributed to the advancement of modern home-making through the use of electric household equipment, were presented to Miss Muriel H. Kodis, Arizona Edison Co., Phoenix, Ariz.; Miss Margaret Buchan, Indiana & Michigan Electric Co., Fort Wayne, Ind.; and Miss Marjorie Hume, San Diego Gas & Electric Co., Calif.

The Thomas W. Martin Award, offered for outstanding performance in the promotion of rural electrification during 1949, was presented to the Pennsylvania Power & Light Co. of Allentown, Pa. The award consisted of a finely engraved bronze plaque.

For outstanding achievement in the promotion of all-electric kitchens during the past year, the Pennsylvania Power & Light Co. was given the George A. Hughes Electric Kitchen Promotion Award which consisted of a handsome trophy and $500 in cash. The West Penn Power Co. was awarded first prize, a trophy and $250 in cash, for electric range promotion; the second prize in this category, going to the Kentucky & West Virginia Power Co., Ashland, Ky., was an engraved plaque and $150 in cash. For electric water heater promotion, the West Penn Power Co. was also given a trophy and $250 in cash; second prize, an engraved plaque and $150, went to The Detroit Edison Co. The Pennsylvania Power & Light Co. won the award for electric dishwasher promotion during this last year, consisting of a trophy and $250

in cash. For outstanding work in the promotion of commercial electric cooking, the Toledo Edison Co. received first prize, a trophy and $250. The Pennsylvania Power & Light Co. received the second prize, which consisted of a plaque and $150. The George A. Hughes Awards are offered by Hotpoint, Inc., and are presented annually to electric companies and their individual employees for outstanding work in the field of electric appliance promotion.

New Pattern of Industrial Selling

Following the presentation of the Prize Awards, Robert C. Hienton, The Cleveland Electric Illuminating Co., described the changing pattern of industrial selling. "The pattern of industrial selling has changed in the last 10 years because of security reasons, the increased size of plants and the increased number of plants," Mr. Heinton said.

In the Cleveland-Northeast Ohio areas, the number of large commercial and industrial customers has grown from 1400 in 1939 to 2930, today. The number will grow to more than 3600 in the next 10 years, he estimated.

"One of the main factors in the continuing growth of Cleveland is that the diversification of its industry, by requiring a multiplicity of services, results in incubating new small industries. Because these newer plants are of efficient modern design, we feel they will continue in operation for many years, and this provides a continuing source of employment opportunities for the young people of our community," he concluded.

Eugene S. Thomas, Television Station WOIC, Washington, D. C., discussed television as a new source of revenue and what it means to the industry. "Already 5,500,000 television sets are in use in the United States," Mr. Thomas said, "every minute of the working day another 50 homes are so equipped. The area now served by television includes 60 metropolitan markets in which 60 per cent of the nation's population lives, which account for two-thirds of the nation's retail sales." In concluding his address, Mr. Thomas said, "Television advertising today is a grown-up medium. It is ready to increase sales of big load-building appliances and to increase consumption of electric power."

James J. Nance, President of Hotpoint, Inc., the final speaker at the session, in urging companies to increase emphasis on direct merchandising of appliances said, "I am speaking in the spirit of bringing the revenue increases that justify the many added investments. That this will be done I have no doubt, and as your company prospers the manufacturer whose plans are parallel will also prosper. In a word, the outlook is bright. Our success will depend on our own imagination, resourcefulness and energy."

The initial meeting of the Home Service Conference, held on Monday afternoon April 3, under the direction of Mrs. Mariquita Dygert, The Detroit Edison Co., Chairman of the Home Service Committee, EEI heard the talk, "We Are All Wash Women 1950 Style," by Dr. Elaine Knowles Weaver of Ohio State University. Dr. Weaver discussed the electric company's role in alleviating women's age-old drudgery in a modern age. Lee Cooley, Director of Television, McCann-Erickson, Inc., then illustrated the importance of Home Service in television programming. Featured on the program was a skit, "Lady It's Cold Inside." Written and produced by Miss Elizabeth Parker, Georgia Power Co., it portrayed the promotional side of selling home freezers.

Four Sectional Meetings

Four sectional meetings sponsored by the Commercial Sales, Farm, Residential and the Industrial Power and Heating Sections of the Institute were held on Tuesday, April 4.

The Commercial Sales Section with Coburn D. Hollister, New York Power & Light Corp., and Shelley S. Sansbury, Union Electric Co. of Missouri, sharing the chairmanship responsibilities, stressed light and commercial cooking in its session. C. M. Broad, Mississippi Power and Light Co., discussed the experience of the G. E. Lighting Clinic; Frank Mansfield, Sylvania Electric Products, Inc., presented a picture of the Indianapolis Lighting Survey, and Professor Paul Seagers of Indiana University illustrated the various phases of lighting in the classroom. The various aspects of highway lighting problems were then offered by C. E. Waldron, Niagara Mohawk Power Corporation. L. H. Lingemann, Duquesne Light Co., described one utility's street lighting program and J. Roscoe Furber, Northern States Power Co., concluded the morning session with the talk, "Using Light To Sell Light."

Leading off the afternoon session was a report on the Commercial Sales Log by G. W. H. Allen, Dayton Power and Light Co., during which he discussed plans for the future. E. B. Haskell, The United Illuminating Co., showed how restaurants and drug stores could be made into sources of additional revenue. He was followed by E. P. Werley, Pennsylvania Power & Light Co., who talked on selling commercial cooking and Glen V. Rork, West Penn Power Co., who discussed the all-electric kitchen. George A. Weatherton, Kentucky and West Virginia Power Co., Inc., pointed out to the delegates how market analysis shapes selling plans and David W. Grosshandler, Hotpoint, Inc., concluded the session with a talk on commercial cooking.

Farm Electrification

The Farm Section meeting, presided over by J. C. Cahill, Chairman of the Section, emphasized farm load building, rural youth activities and community and farm customer development. Dividing the morning and afternoon sessions was the Farm Luncheon at which L. L. Rummell, Dean of Agriculture, of Ohio State University, addressed the delegates.

"Farmers are more efficient today than a decade or two ago," Dean Rummell commented, "They have cash to buy services for farm and home. As a class they are getting older and need more conveniences and labor savers." He pointed out that, "electric equipment is still quite limited in usage on farms served by electric power." In conclusion he said that the selling job which must be done is a joint responsibility of the utilities and the educational agencies.

Following the remarks of J. C. Cahill, The Detroit Edison Co., Chairman of the section, a brief review of the history of rural electrification and an examination of the work of the Farm Utilization Committee was presented by E. D. Smith, Dayton Power & Light Co., in the absence of John L. Burgan, N. Y. State Electric & Gas Corp. C. D. Leiter, The F. E. Myers & Bro. Co., then addressed the audience on the subject of water systems program for 1950. He was followed by Ashton B. Collins, Reddy Kilowatt Service, who concluded the morning session with a highly informative address entitled, "Plus Values on Our Farms."

The session resumed after the Farm Luncheon and the first speaker, Herman

(*Continued on page* 124)

Salesmen Wanted

By Elmer L. Lindseth
President, The Cleveland Electric Illuminating Company
and
President, Edison Electric Institute

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 6, 1950

YOU have been discussing, I am sure, in this Sales Conference the urgent necessity to lift selling in our industry to the highest possible level, recognizing that it is the customer who is the boss in America.

I have no doubt that you sales executives have determined to make a buyer's market actually a salesman's market.

Ours is a selling way of life. That's why when the world thinks of an American, it automatically thinks of a salesman. Sales people have convinced me that half of the goods in America are purchased, and the other half are sold. This selling is done by creating wants rather than just filling needs.

You people have done a great sales job in putting more power at the elbow of the American worker, in bringing comfort, convenience and beauty to millions of American homes and in lighting and relighting the nation. But, frankly, when I look at the opportunity ahead of us I know, and I am sure you agree, that the sales methods of the '40s will never be good enough for the '50s. You will want to think big when you make your sales plans, and yours must be a never ending search for the most efficient and effective way to spend advertising and selling dollars.

The Art of Persuasion

This calls for the best in market research, in selection and training of people, and in motivation of all members of your organizations to aspire for the highest degree of perfection in the art of persuasion.

These are "new model" days. None of us will want to have a "last year's model" type of sales organization.

I would enjoy talking with you further about your programs for selling additional kilowatthours. Those programs are vital to the industry. But I feel that I have an even more important job today. For while you and the other sales leaders in America are doing a great job of selling products and services, and thereby raising the standard of living of our people, the blunt and painful truth is that all of us have been shamefully neglecting the obvious job of selling the system that makes it all possible.

Our Full Sales Line

We have only been selling half the products we have to sell. Our full line includes the American way of life as well as electric service.

Because we have not been selling the full line, I am here today advertising for salesmen. Here is my ad:

> SALESMAN WANTED to sell a product that makes possible the highest standard of living in the world with the greatest degree of personal freedom. Very interesting work persuading people to keep and improve the best economic system yet developed. Wonderful opportunity to protect your own future. You train yourself. Can do full or part time work. Exclusive territories. You sell the people you **know.** Competition is keen, but we have the better product. Experienced sales people will have the best opportunity. Principal requirements are eagerness to do the job and faith in the product. Compensation unlimited.

I would like to have all of you here today answer that ad—because when we look at how far the government has already wedged its way into a great many functions hitherto performed largely by private enterprise, we see that we are rapidly arriving at the point where socialism will soon win by default.

The story in our own business you know well. In 1933 Federal and municipal electric light and power systems were serving 2,200,000 customers, or 9 per cent of the nation's total..

The Governments' Customers

Today they are serving 7,500,000 customers, or 19 per cent of the total, with power costs heavily subsidized by the taxpayer.

The Federal government today is taking as taxes over 11 per cent of the total revenues which the electric companies receive from the sale of electricity. These are Federal taxes only.

But the government power systems pay no Federal taxes.

This differential of 11 per cent shows there is no magic in the government's claim that it can produce and sell power at lower prices than the electric companies.

Nevertheless, this claim — repeated over and over by government power propagandists — results in unjust, adverse criticism of the companies' rates.

The Hoover Report pointed out that the Federal Government owns or is financially interested in about 100 important business enterprises. It is the nation's largest landlord, the biggest factor in the life insurance field, the largest commercial banker in the world, the world's greatest purchaser of agricultural commodities, and the biggest single supplier of electric power in the United States.

This degree of socialism is an accomplished fact. It is an alarming trend toward a socialistic state, planning and regulating all phases of our lives.

How Far We Have Gone

An example of how far we have progressed along this road is seen in the report of the majority members of the Senate-House Economic Committee which was published recently.

The majority headed by Senator O'Mahoney recommended among other things:

> "THAT steel companies file with 'an appropriate agency' of the government scheduled or proposed price increases and delay such boosts 30 days while Congress looks over the schedules.
>
> "THAT the committee 'examine the extent to which the steel industry has developed technological and economic similarity to public utilities.'"

This particular report was concerned with a development seemingly affecting only the steel industry. But actually, what can happen to the steel industry can happen to any industry. Regulation or price control or any other kind of unnecessary governmental intervention is a possibility in any business—and is already an accomplished fact in many businesses.

The American people are being sold

this socialistic future by one of the most skillful sales campaigns ever conducted.

We, who should have been selling our full line, have been falling for the old gag that because we have a better mousetrap, the world will beat a path to our door. And once again we're finding out how false that one is.

We have lost ground not because our competitors have a better product, but because they have done a better selling job.

Get me straight—I'm not writing an obituary for America. I believe we've got a great future, but it will take work and selling to achieve it.

Energy and Perserverance

Fortunately many are beginning to realize the magnitude of the forces lined up against us and the momentum those forces have obtained. As a result we now know that a great deal of energy and perserverance is going to be needed if we're to make progress in the other direction.

The growing awareness of the problem is encouraging. But there is little encouragement in the fact that relatively few people have done anything to oppose the trend.

What is needed now is a plan of action.

All of us in this room belong to that 2 or 3 per cent of the total population in this country who occupy a position of leadership, and thereby have the capacity, the opportunity, and the responsibility to influence constructively the thinking of hundreds, and in some cases thousands, of other people.

Friends, business associates, townspeople, employees, fraternal organizations, P.T.A.s, political groups, etc. will be influenced by a shift from a passive to an active position on our part.

The ideas which I have for action are not original with me, but they do reflect the experience of many people who have been earnestly concerned about the threats to liberty and who have been doing something about them.

This is not the kind of a selling job we can delegate. It's a grass roots sort of thing which must begin with each of us who wants to help.

Assuming we have resolved that we *can* help and that we *will* help, what specific steps can we take?

First, we have got to get informed.

In plain English, we must know what we're talking about. In sales language, if we're going to sell the American way of life, we must know our product.

Unfortunately, this isn't quite as simple as it sounds.

Too few of us businessmen know—much less are able to express clearly to others—the simple fundamentals of our free American economic and political system, its virtues, and its values.

Cyrus Ching, who used to be a businessman himself, and who now heads the United States Conciliation Service, recently put his finger exactly on the problem when he said he was forced to admit that union leaders come to collective bargaining sessions much better prepared than the businessmen who sit across the table from them.

This observation is not intended to impugn the motives of union leaders. But it surely adds little to the reputation of businessmen.

It is no exaggeration to say that the nationalizers often know a great deal more about the American economic system than the advocates of free enterprise. Many Communist leaders in this country were outstanding college students. They have the very sensible idea that before they can attack the American system, they must know more about it than its defenders.

The Expert Salesman

When a salesman decides to promote a new product, *he soaks up* knowledge about it. He goes to sales meetings, gets details of its construction, reads product literature, talks with people who have used the products, gets testimonials, and so on. He acquires such knowledge in order to become an expert salesman.

This same kind of process is vitally needed in America today—a refresher course in the American Way. And fortunately, the first steps are being taken. Librarians report an increasing demand for books on economics and politics and the social sciences. Classes sponsored by many organizations, the Junior Chambers of Commerce and others, are being held in various parts of the country to review the fundamentals of the American system. More and more companies are improving their educational work among employees. Speeches before luncheon groups and other civic organizations are being devoted more and more to spreading accurate information about the values of the system we now have.

It is about time we had this type of selling, because the salesman will have a dim future under socialism. For under socialism, "selling" will be replaced by "telling."

My second point is this:

We must recognize that many proposals for reforming the American economy stem from real human problems.

In sales language — we had better recognize that when we lose business to our competitor—whether his product or service is better than ours or not—it may be because his product seems to fill a need or want—real or imagined—that ours does not.

Sumner Slichter, of the Harvard Graduate School, in an analysis of the lack of confidence in business which is expressed in many quarters, said:

> "It is true that many proposals for reforming the economy are ill-considered and impracticable. This does not mean, however, that the proposals do not spring from real problems. . . .
>
> "Certainly business cannot be expected to have influence in the future unless it shows awareness of the problems confronting employees, farmers, and consumers, and unless it is willing to offer constructive proposals for dealing with these problems."

As a corollary to Professor Slichter's remarks, we should recognize that government always tends to fill any void left by private enterprise. If there is a strong demand for something, and business fails to meet the demand, government will surely step in.

Business has suffered because it has not maintained the full confidence of the public. One way to gain more confidence is to refrain from an ostrich-like attitude toward the legitimate needs of the people for security, opportunity, and progress.

The desire for a fuller life and for more security is a powerful force. After duly recognizing and understanding it, we must sell *to* it. So my next point is:

We must be for progress and change, i.e. we must work for something, not merely against something.

You all know the political maxim, "You can't beat somebody with nobody." Neither can we beat something with nothing. This is a good principle for us to follow in fighting the "gimme" state.

In selling, we all know the value of positive ideas. We don't knock the competition—we sell the advantages of our own product. It's the same with selling this American system. We need to get out of a negative, purely critical position and offer something constructive.

We must offer something positive

which has an appeal for the man in the street. We must demonstrate that he will be better off under our present economic system.

This means we must be for progress. We must concede that the American economic system should and will be improved.

We can be for every good thing our system has already brought. And we can honestly promise to preserve what we have, and promise to make it even better.

Just what are we business men working for? Isn't it an expanding economy of freedom, opportunity and competition? Isn't it an ever rising standard of living achieved through ever increasing the tools and skills of productivity? Isn't it the security and independence that come with freedom, as contrasted with the slavery of collectivism, in business and industry, in the professions, or in any other walk of life? I believe it is.

Having determined what we stand for and how we are going to proceed, we must get our story across. My fourth point, therefore, is this:

We must spread the story of the superiority of the American system, in terms everyone can understand and accept.

In sales language, we've got to tell our story using modern sales methods.

Each of us must do this, out of his own experience, in his own way, in terms of how it affects the lives of his listeners.

"Let's Sell the Sizzle"

And let's use methods that work. We'll never sell our system by talking about economics, the F.R.B. index, national debt, carloadings, the price of wheat or bureaucracy. Let's translate our ideas into the language of self-interest for the people we're trying to sell. "Let's sell the sizzle instead of the steak."

You, like many others, may hesitate to do this selling job because you're not accustomed to it. But even if you need urging to get started telling this story, you'll find your enthusiasm and effectiveness increasing after you've made a few sales calls.

Keep in mind what the people are being told by the competition. They are being told that they can have all they now have, plus something more, if they will trade in our present economic system for socialism. Our competition is offering a promised low-level security in return for surrendering all or part of our individual freedom to big government. We certainly ought to be able to outsell that.

One point is important in this selling job. Communication in the field is abstract, difficult, largely undeveloped.

But let's tell this story to our employees, to our customers, our neighbors, our friends. Let's tell it to all who will listen. Let's reconvert those who have been proselyted by our enemies.

Telling the Story

Numerous surveys have demonstrated the value of telling employees the story of how the American business system benefits the nation. No other field is as fertile and productive. Many of you are sowing the good seed in this field. Everyone should.

Employees want the truth. Once they have it, they can be extremely potent salesmen of free enterprise.

A recent survey by Opinion Research disclosed that 83 per cent of employees who were uninformed about the benefits of the American economic system, were wholly or partially in favor of government domination of business and the national life. Only 17 per cent believed in anything like what we call free enterprise.

But among well-informed employees, 75 per cent upheld free enterprise. Only 25 per cent could be classed as partial or extreme collectivists.

The media for getting "the Word" to employees are familiar—employee publications, meetings, letters, foreman meetings, employee education programs, and various other avenues of communication. But the techniques of using these avenues are not easy, or well developed. This is not a criticism. Rather it is a challenge to do a job as yet undone.

Other opportunities exist in our daily personal contacts with people who are not yet as steamed up over the situation as they ought to be. Especially, let's tell the story to the youth of the country. Then there are numerous organizations, from churches to luncheon clubs, where discussion of current problems is encouraged. Let's avail ourselves of every opportunity to tell them the story.

It may not be easy to bring yourself to do this. And many of your associates may feel unsure about taking on the task. But urge them to do it. They soon will find they enjoy telling it and the listeners are grateful for the information they receive.

Telling the story is one kind of action we can take. There is another which can be summed up in my fifth suggestion:

We must take a more alert personal interest in government, and implement our interest by personal action.

In sales language, we must know and sell the ones who make the decisions—who place the orders. And we must identify ourselves with and be a part of them.

It isn't enough to learn and spread the story of sound economics. To put an informed public opinion to work, we must impress our opinions on government at all levels, from the school board to the White House.

It is usually not possible to participate in government to the extent of running for office, but we can appear before legislative committees, and accept appointment to administrative jobs.

Before Congress or any other legislative body votes on any measure affecting our American economic system, we can act singly and through organizations to let our representatives know how we think and where we stand on it.

Unfortunately, the phrase "write your congressman" has been bandied about so much that too few people with our economic leanings take the trouble to write their congressmen. But it's still a sound idea—and an important one. Try it.

Visit Your Congressman

Better yet, visit him personally. A recent Washington study of how to express your viewpoint to Congress showed that those in the House and Senate rate as the most valuable contact of all the personal call from a constituent who is well versed in the subject that he comes to present.

I shouldn't have to even mention that we hardly have a right to complain about the way things are going in government if we don't vote ourselves—for the men and the issues which best represent our slant on things. At the same time we can perform a real service by arousing the desire to vote in persons who agree with us but who don't take the trouble to go to the polls.

If there is one special kind of legislation to which we all must pay close attention it is that affecting the unnecessary expenses of government. Certain expenditures must be made—others are frills. It is the frilly kind that causes us the trouble.

Whenever the government proposes

to take over more functions of business or to shower the gratuities of the hand-out state on more people, additional money is required. Let's show the people that although they may enjoy the blessings of Santa Claus they in the end have to furnish the Christmas shopping money.

Mr. Hoover has pointed out, how the American standard of living must inevitably decline unless the present trend of ever-higher taxes is curbed. If government is to spend less, it will have to take in less. With less money on hand, let us hope there will be fewer proposals of something for nothing.

American businessmen, who have demonstrated to the world that salesmanship is one of our higher arts, can find no better use for their talents than in selling the idea of economy and reduction of spending in government.

My sixth and final suggestion overlays all the others and is partly dependent on them.

We must truly deserve the confidence of the people.

The product or system we have to sell won't be any better in the minds of our customers or our prospects than the reputation of the people behind it.

Lack of confidence in business on the part of the general public is a hair shirt we have all had to wear.

In getting rid of this hair shirt there is no substitute for performance. Before we can expect the people at large to have faith in business, we must be sure we are running our business affairs so in the public interest that we *deserve* confidence.

Being a Good Neighbor

We also owe it to ourselves to let the public know the value of that performance. This calls for alert and expert public relations, which will give us the judgment we deserve in the court of public opinion. It means being a good neighbor—and letting the public know we are one.

These, then, are the essentials of a program that any one of us can take on. One which—as I've said—has been developed from the experience and suggestions of many people I've talked with.

Let me repeat these six points:

First, we have got to get informed.

Second, we must recognize that many proposals for reforming the American economy stem from real problems.

Third, we must be for something, for progress and change, not merely against something.

Fourth, we must spread the story of the American system, in terms everyone can understand and accept.

Fifth, we must take a more alert personal interest in government, and implement our interest by personal action.

And sixth, we must truly deserve the confidence of the people.

How tough a sales job we've got was clearly indicated by results of a survey last year by Henry Link and Albert Freiberg. They found that although 75 per cent of the people said they were against socialism in the United States, those same people still favored a number of specific measures which fell within their own definition of socialism.

Faulty Reasoning

For example, of those who were against socialism, many recognized that TVA was socialistic, but they were in favor of TVA. The same was true in the field of health insurance and a number of others. They professed they were against socialism, recognized a measure as socialistic in nature, yet favored that measure.

The ardent advocates of socialism are aware of this faulty reasoning. That is why we constantly see measures being proposed which represent only a small step toward full-scale socialism. Remember, Britain was socialized step by step, not all at once. Every time government supplies a service which private business could supply just as well, socialism is at work.

If enough of these measures get enacted into law, we shall awaken one morning and find socialism is an accomplished fact.

One other fact that makes our selling job a tough one is that it is only human nature to stand by and watch another guy take a licking as long as your own interests aren't directly at stake.

It is hard to refuse a handout from Santa Claus.

But if we are ever to get the nation running in right channels, we shall have to stop acquiescing in government intervention when it doesn't directly concern us, and we shall have to quit taking a handout from Uncle Sam with one hand while we take a poke at bureaucrats with the other.

One thing above all others is vital. Any effort to preserve "Our Way" or "Free Enterprise," or "Freedom," is of no importance if its objective is only to save "our" business, or "our" jobs, from nationalization, whether "our" business is railroads, or steel, or medicine, or electric power or any other.

Saving a business—any business—from nationalization is important only because saving it helps to preserve freedom for *every* American citizen.

If we plead what seems to be our special interests, we will surely fail. This is true of the railroads, or doctors, or steel, or coal, or any other group whose particular field of business is being invaded by government and is being nationalized by stages.

We will get support from the man in the street only when we show him that after all it is he who is being hurt and unfairly treated. And that when the benefits of the welfare state are being showered on him, he is being bribed with his own money.

Not until we show him that it is his savings and his children's future savings that are today being taxed away from him will he be on "our" side—which is in reality "his" side—in this fight for a free America.

It's Everyone's Fight

And it will only be when we as individuals get the aid of a host of other individuals that we can win this struggle which seems to be our particular struggle but which in reality is more importantly theirs.

Dr. Roy Scott, a prominent Cleveland specialist, gave me the perfect illustration of this point on the train a year ago as he was going to the American Medical Association convention, then at the height of its fight against socialized medicine.

He told how when he first came to Cleveland as a young doctor at Lakeside Hospital he and others were accustomed to stopping in at the old brewery near the hospital for a glass of beer and a cheese sandwich.

Then came prohibition during World War I. And before it became effective everyone who came in would ask Joe, the bartender, what he was going to do when prohibition came. Joe got a little fed up, and he painted a big white sign on the mirror behind the bar which said this:

"When prohibition comes, never mind what *I* am going to do. Just what are *you* going to do?

I think that sums up pretty well the point we've got to drive home to the man in the street.

1950—The Year for More Aggressive Selling

By Harry Restofski

General Sales Manager, West Penn Power Company, and Chairman, Commercial Division General Committee, EEI

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 5, 1950

ALL OVER the country there are evidences that in 1950 the trend among electric companies is toward more aggressive selling. If you look for the signs you find that this trend is definite and substantial, though by no means of landslide proportions.

5 Reasons For Selling

There are sound reasons why we should return to the kind of selling that has contributed so much to our industry's remarkable record of growth. Here are five of those reasons:

1. *Our postwar seller's market is gone.*

From the end of the war until now, many of us haven't felt the need for active selling. We were kept busy whittling down the tremendous backlog of demand for service extensions, for electric appliances and equipment, and for more and more electric service as commercial and industrial establishments tackled their delayed modernization programs.

Now we are caught up on line extensions, sales of important electric load building appliances dropped sharply last year, the modernization backlog is melting away, farmers are more cautious buyers, industrial expansion has slowed. We are definitely back in a buyer's market and that calls for aggressive selling.

2. *We again have something to sell.*

Generating capacity shortages are definitely behind us. From a reserve of only 6 per cent in 1948, last year's figure increased to 12 per cent, and this year's is expected to grow still more.

3. *Our sales opportunities are greater.*

Despite the great increase in use of electricity during the past decade, our unsold markets are still growing. That's because it's easier to convince people that the electric way is the best way to live and work, because they have more money for purchasing electric equipment, because of our improved competitive position, and because new electric applications are developed faster than old ones come into general use.

4. *Aggressive selling is the best way to meet and beat competition.*

In some markets competition is more active than ever. For example, the LP-gas industry, urged on by growing availability of its own product, is better organized and equipped to do a selling job than ever before, and its efforts continue to meet with almost phenomenal success.

The piped gas industry is experiencing what is probably the greatest growth in its history, spurred on by the extension of transmission pipelines that are bringing natural gas to many sections hitherto dependent on higher-priced manufactured gas. Those of you whose areas have, or are about to have, natural gas for the first time don't need to be told that gas competition is on the march. The only way we can combat these and other competitive forces is through aggressive selling.

5. *Selective selling increases profits.*

That's because the new business can be sold at a satisfactory profit margin, it adds to load diversity and revenue stability, and results in operating economies such as from more efficient generating facilities. As total electric sales grow, it becomes more practical to take on big single customers who, in addition to being profitable in themselves, ring the cash register a second time by providing the increased payrolls on which growth in residential and commercial business largely depends.

Expansion and Sales

I have purposely left out the most commonly stated reason why we need increased sales activity. That stated reason is that we must find a market for the substantial quantities of additional energy that can be produced as a result of our expanding generating capacity. I have not included this so-called reason for aggressive selling because I think it is largely spurious.

Some people tell us in one breath that we are in a major expansion program to *meet the demand* that has *already been built up* for electric service, and in the next breath they say we must step up selling in order to dispose of *the surplus capacity* that results from our major expansion program. The two statements just don't fit together.

Planned Expansion

Certainly, if a company has cut back in sales activity because of capacity shortage, it can resume selling when the shortage ends. But too often the implication is that, having *overbuilt* in capacity, we are now faced with the alternative of selling as never before or of figuratively losing our shirts. I don't believe it. Electric companies have not spent billions of dollars on expansion only to then wonder where they will find a market for their service.

Individual electric companies increased generating capacity to provide adequate reserves, to replace inefficient equipment, and to supply the growing market for electricity resulting from their past selling and from their projected selling programs. It hasn't been the industry's practice to expand first and then belatedly to go into increased selling to dispose of surplus capacity.

In the main, companies with large capacity additions, going well beyond immediate needs, made these additions because they planned to resume or increase profitable selling rather than now being in the position where they must step up selling because of overbuilding.

In the beginning I said there are evidences that in 1950 the trend among electric companies is toward aggressive selling. That doesn't mean, however, that we have completed our postwar sales conversion—that we are geared up to do an optimum selling job. *That isn't so by a long shot.*

Many of us haven't yet found and trained all the personnel we need; some of us find it difficult to increase sales budgets enough to make up for increasing price trends and for the needed increase in sales activity as well; some of us haven't yet fully realized that the end

of our seller's market calls for greater sales activity. We still have to make a great deal of progress before we have the needed selling interest, activity, and effectiveness.

This is brought out clearly in the 81 replies to *Electrical World's* recent questionnaire on load building, which went to companies with more than 25,000 meters. The story is in the March 27th issue of *Electrical World*. Frank Innes was good enough to let me examine their analysis and summary of replies as soon as it was ready.

Depleted Sales Forces

It definitely showed, for example, that we still have a long way to go to fully build up our sales forces. Residential load building personnel is only a little over half what the replying sales managers consider desirable; farm and commercial personnel are about two-thirds of desirable strength; and only industrial load building personnel is about up to the desirable size. Nearly 75 per cent of those replying report deficiencies in numbers *and* competence of sales forces. About 20 per cent report refusal of authorizations to hire more people. Worse still, one company in the 100,000 to 500,000 customer group and two in the 25,000 to 100,000 customer group report *no sales forces at all!*

In reply to the question, "Do you know definitely where you are going in load building activities?", out of 81 replies, only 20 sales heads could quite definitely say "Yes." Twenty-four others gave qualified affirmative replies. But 15 said they *do not know where they are going* in load building activities and 22 do not answer.

If my presumption is correct that most of those who do not answer also do not know where they are going, then almost half the total are in this category. I hope the lost souls are all here this week and that they are beginning to find their bearings in these conferences.

Increased Sales Cost

I suspect that a major handicap to increased selling is the fact that sales costs are growing so rapidly because of increased cost of labor, advertising, and materials. It's not unnatural for top executives who watch the totals to fear they are getting too big. However, to appraise cost trends properly we must allow for the fact that our companies do not remain fixed in size, they grow.

We grow by adding customers and by increasing the size of our customers. So, instead of judging sales cost trends by total costs, we should judge them by cost per customer and, even more particularly, cost per dollar of revenue. For example, in my own company, while *total sales costs* increased over 40 per cent since 1938, during the same period sales cost *per customer* decreased 2 per cent and per dollar of revenue decreased 33 per cent.

Despite the certainty that we still have a long way to go before we are up to par in our sales activity, I am convinced that the trend is toward aggressive selling. Here are some of the indicators:

1. *Sales forces are being rebuilt.*

This is a continuation of the postwar process, but the tempo appears to be faster this year. Also, the *time available for selling* and *overall sales effectiveness* will increase much more than will be accounted for by the increased sales personnel. The reasons are the greater seasoning and experience of new sales folks added in the past year or two, and the fact that non-selling work takes a continually smaller percentage of the sales organization's time as it grows in size.

2. *Sales expenditures are definitely on the upgrade.*

A recent survey, covering 30 of the largest electric companies in the country, showed that only 4 expected decreases in 1950 sales cost *per dollar of gross electric revenue*, 8 expected no change, and 18 expected increases. The unweighted average increase was 8 per cent in the amount to be spent *per dollar of gross revenue*. This growth in sales expenditure per dollar of gross, *plus* the fact that electric revenues will go up about 6 per cent, adds up to an indicated increase of 14 per cent in sales spending for these companies.

3. *Industrial development activity is increasing.*

Of the replies to a recent survey of development programs by EEI's Industrial Development and Markets Subcommittee, none said they would decrease activity, 18 indicated a continuance of the existing program, 7 said they planned increased development activity, and 5 said they might increase activity later.

4. *Interest in selling lighting is widespread.*

A survey just completed by the National Promotion Committee of the Planned Lighting Program includes replies from 86 companies. Ninety-three per cent say they will conduct a lighting sales program this year with 73 per cent including farm lighting, 82 per cent residential lighting, 90 per cent industrial lighting, and 96 per cent including commercial lighting.

5. *There is a trend back to utility merchandising.*

More electric companies are returning to full or partial merchandising than are discontinuing appliances selling. And most of those that resume merchandising say they are doing it to build electric sales rather than to earn a merchandising profit.

6. *EEI Commercial Division committees are placing special emphasis on providing aids for more aggressive selling.*

They have been studying markets, promoting greater use of existing sales programs and sales aids, and creating new ones, but the emphasis is on the last named. This reference to the committees gives me an opportunity to pay a well-deserved tribute to the 286 men and women on the 20 Commercial Division Committees. Much of the fine service performed for the industry by the Institute results from the earnest work of its committee members. Those in the Commercial Division have been doing their full share. I want to thank them for all of us for the excellent job they are doing, and to thank them for myself for their fine cooperation and constant helpfulness.

Fortunately, in serving us all, they get special benefits for themselves in personal development and for their companies in their greater job effectiveness.

7. *Many electric companies have stepped up their sales programs substantially.*

Here are a few instances:

Central Arizona Light and Power Company is hard at work on its comprehensive "Back in Action 1949-1950 Sales Program," which marks its resumption of postwar selling. Here's an interesting quotation from their plan book that points up a situation that applies equally to many of us: "We are faced with a tremendous selling job; 40 per cent of our total customer group has grown up, married, and begun housekeeping, and has *never* had the experience of living in a buyer's market period! These young homemakers need to be told *first hand*.

(*Continued on page* 143)

Building Farm Electric Load

By Grover C. Neff
President, Wisconsin Power & Light Company

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 5, 1950

FIVE MILLION farms in the United States are now using central station electric service. Another quarter-million farms that are not using it have electricity available to them from lines only a few spans away. These two figures total more than 90 per cent of the occupied farms of this country. By the end of 1950, electric service will be available to 96 per cent of all occupied U. S. farms. Approximately one-half of the connected farms are served by electric operating companies and the other half by co-ops. The big job of extending the distribution systems to the farms of this country is about over.

Maintaining Good Service

However, the development of farm electrification to the point where electric power is efficiently applied to all uses which will return a profit to the farmer is only well started. At present we do not even know the ultimate possibilities of the farm electric load. But we do know that for many electric companies the average use per farm customer has more than doubled during the past 10 years. In 1940, the average use by the farm customers of Wisconsin Power and Light Company was about 1200 kwhr. In 1949, it was about 3100 kwhr, or an increase of 160 per cent. If the average use per customer increases as fast during the next five years as it did during 1948 and 1949, our farm customers' average use in 1955 will be approximately 5700 kwhr.

Farm Kwhr Consumption Grows

The distribution system that satisfactorily carried the load when the average consumption was 1200 kwhr per customer may be overloaded when the average consumption increases to 3100 kwhr and is quite likely to be inadequate when the average consumption reaches 5700 kwhr per customer.

In addition to this increase in average load per customer, many of these farm distribution lines were extended rapidly and, unless additional sources of supply were provided, the average distance from farm customer to source was materially increased. These rapidly changing conditions can create a serious problem of inadequate capacity in the farm distribution lines. It is important that we closely watch these rapidly increasing loads and promptly do whatever is necessary to maintain adequate capacity, with resulting good voltage regulation and good service.

Before the coming of electricity, the farmer lighted his place with lamps and lanterns, he pumped water with windmills and gasoline engines, he milked his cows by hand. A great many had hired men to help carry on this activity, and the farmer was more or less independent; so long as he could keep his equipment in operating condition, he could get along all right. With the coming of electricity to his farm, he depended on an outside supply for lighting in the house and barn; the electrically-driven pump replaced the windmill; in many cases, the electric range replaced the old wood stove or coal stove; the milking machine was a big factor in replacing the hired man.

Steady Power Essential to Farms

Each year, as the farmer applied electric service to more and more of his farm chores, it has become more important to him, and he is more dependent upon it. If the power fails, his wife cannot prepare the meals, for the electric range will not perform. Without electric power to run the milking machine and without the hired man, it is very difficult to get the cows milked. And, if the electric pump is not in operation, running water fails at the house and the barn, with all of the inconvenience that goes with that. Electric service is very important to a farmer who has even partially electrified his farm, and the failure of that service works a great hardship upon him. The farmer is in a much worse position than the customer in town, who may cook with gas, get his water supply from the city water mains, and has no cows to milk.

It is up to us in the utility business to see that these farm distribution systems grow in capacity with this rapidly growing load and are laid out, maintained, and operated so as to give good voltage regulation and reduce outages to a minimum. As a program to accomplish this, I offer the following suggestions:

1. Make rather thorough load, voltage, and interruption surveys, to determine accurately the quality of the electric service now supplied to farmers by your company.
2. Make estimates of average use by farm customers, say 10 years ahead.
3. With the data collected, the engineering or planning department can determine what has to be done to meet the situation.
4. Do everything possible to carry out the plans determined in No. 3.

Sales Dep't. Functions

The Sales Department is in the best position to know what the customer thinks of the quality of the service. Men in the Sales Department contact the customer, talk with him, and often watch the appliances operate. They can thereby form a fairly good opinion of whether something should be done to improve the service to a particular area. Some system should be set up so that salesmen will report any reported irregularities, such as low voltage, interruptions, etc., and this information will be passed on to the proper department in the company for attention and action. Some follow-up system should be provided to see that the suggestions are given proper attention.

Sales and Service

The Sales Department should work closely with the other departments to see that good, dependable, and adequate service is supplied to farm customers. It is not only good for the company as a whole, but also for the Sales Department. You all know it is easier to sell appliances when the utility's service is good than when it is only mediocre.

This question of service to the farm customers of our respective companies is one of the most important before us, and we should not be content or quiet until the company each of us is connected with maintains the quality of its farm service at a high level.

The problem is not too difficult. For

the most part, the farm lines of any one company radiate from urban centers where an adequate supply of 24-hour electric service is available. In a great many of these urban centers, experienced utility operators live and look after the service of the company's customers. The farm lines radiating out from these urban centers are usually rather short, so most of the electric company's farm customers are not very far away from a utility operating serviceman.

High-Grade Farm Electric Service

Because of these favorable conditions, the electric service now supplied farmers by the electric operating companies is better regulated and more dependable than that supplied by agencies owning and operating large interconnected distribution systems which cover large areas and are supplied with power at relatively few locations, with longer average distances between customers and servicemen. In general, electric operating companies are today supplying high-grade electric service to their farm customers. In my opinion, they will make the necessary changes and additions to assure adequate capacity at all times to maintain this high quality of service. It is important that this be done.

About one-half of all the energy sold by REA co-ops is bought by them from the electric operating companies. The quality of this service sold wholesale is important to us, as well as to the farm customers of the co-ops. In general, adequate capacity and proper voltage regulation is maintained at the points of delivery. But here, also, rapidly increasing use requires frequent checks of both loads and voltage regulation, so that adequate changes can be made at the proper time to insure the maintenance of high-grade wholesale service.

Recording Voltage to Co-ops.

I suggest that any company wholesaling to a cooperative install 30-day recording voltmeters at each point of delivery, for two reasons:

1. To inform the management of the supplying company as to the voltage regulation at the substation.
2. Many of the farm customers of the co-op probably live a number of miles away from the substation supplying the co-op, and such farmers may be having voltage trouble from the co-op's lines, even though the voltage at the substation is all that it should be. In this case, it is due to overloaded co-op lines and long distance from the source of supply that such farmers are not getting good service; but the natural thing for the farmer and the co-op manager to do is to blame the low voltage on the electric company furnishing the service.

Unless we have some records to show what that voltage was at all hours of the day, we are not in a very good position to defend ourselves. These recording voltmeter charts will provide the record, and they should be kept indefinitely to be used whenever the question arises.

Building Load

It seems to me that this is the time to push load-building to farm customers. A magazine entitled "Rural Marketing," put out by *Country Gentleman,* carries on the front page a balance sheet of agriculture, comparing January 1, 1940, with January 1, 1950. The assets of real estate, livestock, machinery, crops, etc., in 1940 totaled $53,800,000,000, and, on January 1, 1950, $122,400,000,000. The liabilities—real estate mortgages and non-real estate debt—totaled $10,000,000,000 in 1940 and $11,900,000,000 in 1950. The proprietors' equities in 1940 were $43,800,000,000 and, in 1950, $110,500,000,000. The proprietors' equities had multiplied 2½ times in the 10-year period.

When you deal with farmers, you are dealing with a big industry, which, at the present time, has plenty of money to buy the things it needs and can use. Prices of the things the farmer sells have decreased, but, at present prices, the average farmer is prosperous. That is why this is the time to be very active in promoting and developing the application of electric service to farm operations.

We can greatly increase the load by simply increasing the saturation of many appliances and pieces of equipment that are now being used by thousands of farmers throughout this country. If our service is good and dependable, there isn't any reason why the farmer with that kind of electric service should ever want to use bottled gas to operate his range. In nearly every case, electricity is cheaper, cleaner, and safer. So, with proper service to farmers, we should be able to greatly increase the saturation of electric ranges and water heaters.

There are many other things that are now being used by many farmers, but probably not as yet generally accepted by them, which can be sold in great numbers if proper planning and manpower is put into the effort. Some of these that might be listed are barn ventilation, dairy pasteurizers, milk coolers, freezers, hay dryers, the farm shop with all of its various tools, feed grinding, elevators, pig brooders, barn cleaners, silo unloaders, and many others in addition to all the various household appliances. All of the things I have listed here are actually used to advantage on thousands of farms of this nation. The problem is to get many more farmers to do what their neighbors have been doing for several years.

Efficiency First

By 1923 the electric operating companies had brought 24-hour electric service to practically every city and village in this nation and, through increased efficiency of generation and transmission, had brought the price of a unit of electricity down to a low point. Only after these two essential conditions were established did it become possible to consider extending electric service to the farmers on a national scale.

Since 1923 the electric operating companies of the United States have helped, financially and otherwise, in the carrying on of a vast research program, which is conducted largely by research men in agricultural colleges and experiment stations. The American Farm Bureau Federation, the National Grange, various agricultural associations, Departments of Agriculture, and others joined in and supported this cooperative research effort.

Results of Private Research

Through this study, many of the machines now being used by farmers to apply electric power to their farm operations were developed. Without the equipment developed by this research effort, farm electrification would be far behind the position it holds today. It is important that utility companies continue to support such cooperative research, not only with their money, but with the time and thinking of utility people assigned to this work. At present, this is being done in about 20 states of our nation, and many research projects are under way. There isn't much question but that the results obtained from these projects will have a far-reaching effect on bringing farm electrification to a much higher state of efficiency and in

finding new and better ways to use electricity on the farm.

It will pay you to keep informed on the research work now being conducted, so that you can take advantage of developments as they occur. The Farm Section of the Commercial Division of the EEI has recently published a book on Farm Electric Research and Special Studies. The plan is to keep this book up to date, and I commend it to you for your reading; you will get some good ideas out of it that will help you plan your farm load-building program.

The evolution of the heat pump for heating buildings in winter and cooling them in summer is still in the experimental state, but certainly the farmer has plenty of room to install the heat pump if, as, and when it is developed to the point where it is practical for him to use it. This alone would take more kilowatthours on the farm than the amount used today, on the average, for all the appliances the farmers now operate.

Rural Load-Building

The ultimate load on the farm is still unknown, but of one thing I am sure—the load will be big, probably bigger than any of us would estimate at this time. But this load will not be developed rapidly unless the utility company sales department makes effective plans for rural load-building and provides sufficient manpower. Farmers are scattered over wide areas. A company representative calling on farmers has to travel considerable distance to see a small number of them, and he will have to spend some time with each customer who is interested in expanding his use of electric service.

Our problem is to introduce a new form of power to a great and diversified industry. New lines of machinery have to be developed; methods have to be found to apply, efficiently and properly, machines now available. The company representative has to work with the farmer to find out just what he wants to accomplish. He must help him determine how best this can be done and then advise him on every step of the operation. The representative, of course, must be qualified to do this. If he is the right man, he will make a lot of sales and, at the same time, he will render a very valuable service to the farm customer of his company.

I do not know the right number of such sales representatives that any company should have. We have reached the conclusion in our company that we need one such sales representative for each 1000 farm customers. That is not too many, and it may not be enough. At any rate, that is where we are at this time, and we feel that these men are doing a good job of building the farm electric load.

Many of the pieces of equipment and appliances needed to electrify a man's farm will not be for sale by the electric company but will have to be secured from some other source. It is, therefore, very important that each utility company have a well-thought-out dealer cooperative program, which makes it easy for the rural representative of the company and the farmer to work together with the local hardware dealers, farm implement dealers, plumbers, and others who will have to help electrify the farm. This is very important to the successful and rapid application of electricity to farm operations.

In our company a capable and experienced sales supervisor reports directly to the Sales Manager and is in general charge of our dealer cooperative program. He keeps the cooperating dealers informed regarding company sales activities, and he is the dealers' representative in our company. He is responsible for publishing 10 issues a year of a sales magazine called "Dealer Doings." This magazine is mailed to each of the cooperating dealers and affords a vehicle which assists in keeping them informed. He arranges for and holds meetings with dealers in each operating district, where they discuss company plans, how to sell, how to train salesmen, adequate wiring, and many other subjects of mutual interest. We believe that we really have good cooperation with approximately 600 dealers operating in the territory we serve, and we feel that this dealer cooperative program is in no small measure responsible for this.

Each company has to develop its own plan, but it is important that you have a plan headed by a good man.

We believe it is important to spend considerable time with the 4-H Clubs, Future Farmers of America, and other similar farm youth groups. These young farm people are very eager to learn more about electricity and how it may be used to make the farm a better place to live. We believe that, through work with these young people, electricity will be applied to farm operations more rapidly, to the advantage of both the company supplying the service and the farmers that use it.

Some companies conduct contests among the young people in the 4-H Clubs in a county and, thereby, create added interest. In our opinion, the work we have done with these young farm groups has been very much worthwhile, and we recommend it to you for your study.

Promotion at County Fairs

Inasmuch as electricity is still new to farmers, we think it advisable to take booths at the county fairs and there put on demonstrations of anything you care to demonstrate and promote. We believe this is an efficient way to get a lot of farmers acquainted with the use of electricity. We have followed this plan now for a number of years, think well of it, and also commend it to you for your consideration.

Please remember that we are dealing with a form of power which is new to this great industry. A vast amount of educational work is necessary, and we should make use of every facility at hand to speed up the farmers' understanding and appreciation of electric service.

Those men responsible for sales in the various utility companies occupy a very important position in this great educational development. The better they do their job, the faster farmers will receive increased benefits from the use of central station electric service.

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A Program of Important Events at Atlantic City, When the 18th Annual Convention Meets

(*Continued from page* 109)

ning to attend the Convention are again urged to make application for hotel reservations as soon as possible. Preferred accommodations are much in demand, and the attendance at the meeting is expected to be large.

Upon arrival in Atlantic City, delegates are advised to register at the Convention at the earliest possible moment. Registration will be conducted according to the following schedule:

Sun., June 4—12 noon to 5 p. m., Hotel Traymore Lobby

Mon., June 5—9 a. m. to 12 noon, Hotel Traymore Lobby

9 a. m. to 5 p. m., Convention Hall Entrance

Tues., June 6—9 a. m. to 7 p. m., Convention Hall Entrance

12 noon to 3 p. m., Chalfonte-Haddon Hall, Main and Boardwalk Lobbies

Wed., June 7—9 a. m. to 12 noon, Convention Hall Entrance

There will be a registration fee of $10.00.

For the convenience of departing delegates on Wednesday afternoon, arrangements have been made with the Pennsylvania Railroad for a special train. To depart from Atlantic City at 3:30 p. m., *Eastern Standard Time,* on June 7, the special will arrive in North Philadelphia at 4:47 p. m., EST, and leave at 5:00 p. m. EST for New York City, where it will arrive at 6:30 p. m. EST. This timetable enables the special to make connections with regularly scheduled trains leaving from Philadelphia.

Aggressive Selling of Electric Service and Our Way of Life Urged at Sales Conference

(*Continued from page* 114)

J. Gallagher, Consumers Power Co., Jackson, Mich., outlined to the attendance the rural youth activities. A. G. Kettunen, Michigan State College, then gave his talk entitled, "Your Future Customers." R. T. Jones, Pennsylvania Power & Light Co., spoke next on the topic of Community and Farm Customer Development. A. G. Mayer, The Washington Water Power Co., delivered his address, "New Targets," and the session was concluded with showing of films by G.E. and Westinghouse on farm electrification.

In the Industrial Power and Heating Section meeting, C. H. Purdy, Consumers Power Co., Jackson, Mich., presided during the morning session. Presented before this session meeting were various talks on lighting, sales training and new power applications. Robert G. Ely, Public Service Electric & Gas Co., Chairman of the committee opened the session with a report on industrial sales activities.

B. J. Martin, publisher of *Electrified Industry,* discussed economy in production and C. T. Shoch, Pennsylvania Power & Light Co., spoke on industrial power and sales training and supervision. Concluding the morning session was an address by Dr. Robert O. Fehr, General Electric Co., on ultrasonic applications in industry.

The afternoon session, presided over by Robert G. Ely, chairman, introduced as the first speaker, G. S. Young, Kansas City Power & Light Co., who delivered an address entitled, "Purchased Power—A Bargain"; J. L. Singleton, Allis-Chalmers Manufacturing Co., talked on the impact of new power applications on various industries. J. Mason Guillory, New Orleans Public Service, Inc., had his speech, "Industrial Lighting—Stepchild of Industry?" delivered by Maxwell Cole, Philadelphia Electric Co., in his absence. Commodore C. P. Conrad, President, Iowa-Illinois Gas & Electric Co. concluded the session with a highly informative discussion entitled; "Industrial Sales, Vital To Our Business."

The Residential Section with H. A. Stroud, Monongahela Power Co., Chairman presiding, discussed the various commercial aspects of load and load building as reflected in the various appliance fields. The first speaker, Roger Bolin, Westinghouse Electric Corporation reviewed new possibilities for the sale of automatic washers and dryers. A presentation on "How Utilities Are Developing Load Through Dealers" was given by T. L. Losby, Northern States Power Co., and an illustration of the role women play in our industry was given by O. R. Doerr, Pacific Gas and Electric Co. A dramatic presentation, "How Is Your KIQ?" by the EEI Electric Kitchen and Laundry Committee closed the morning session.

A view of how television is changing the American pattern of living by Frank Pesveyc, Public Service Electric and Gas Co., opened the afternoon session. The problems of LP Gas competition were then described by J. Rushton, Frigidaire Sales Corporation. A talk, "Certified Lamps—Keystone of Residential Lighting Promotion," was presented by Dr. Matthew Luckiesh, Foster & Davies, Inc., and J. M. Stedman, Pennsylvania Power & Light Co., concluded the session with a speech on the Better Light Better Sight Bureau's new program for teaching about light and sight in Junior High School science classes.

Concluding the 16th Annual Sales Conference was the Luncheon Session at which Elmer L. Lindseth, president of the Edison Electric Institute and The Cleveland Electric Illuminating Co., was the featured speaker. His address entitled, "Salesmen Wanted," stressed the profound need for selling the private enterprise system that has made possible the industry's enviable record of progress.

"We have only been selling half the products we have to sell," Mr. Lindseth said, "Our full line includes the American way of life as well as electric service. The Hoover Report pointed out that the Federal Government owns or is financially interested in about 100 important business enterprises. It is the nation's largest landlord, the biggest factor in the life insurance field, the largest commercial banker in the world, the world's greatest purchaser of agricultural commodities, and the biggest single supplier of electric power in the U. S." Mr. Lindseth went on to say, "This degree of socialism is an accomplished fact. It is an alarming trend toward a socialistic state, planning and regulating all phases of our lives." Mr. Lindseth then outlined a six-point plan of action for the industry which included taking a more personal interest in government and spreading the story of the American system in terms everyone can understand and accept.

Industrial Sales Are Vital to Our Business

By C. P. Conrad

President, Iowa-Illinois Gas and Electric Company

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 4, 1950

SO MUCH has been said, especially by the investment analysts, about the high unit prices and great importance of residential sales in maintaining stability of income of an electric utility that we might be led to believe that other classes of sales, such as industrial, are secondary. The fact is that all classes of sales are important.

Balanced Sales Volume

The most favorable situation for a utility, as shown by its ability to earn a maximum return on investment with minimum rates, is when the volume of sales, especially the demand, of each class is in proper balance with those of the other classes. A utility derives its inherently strong economic position from its ability to serve various customers and various classes of loads with the same plant; in other words, the utility lives on diversity.

The most natural way to achieve diversity is through the balanced development of the various classes of loads. At first most utility plants were "lighting plants," and frequently ran only during the night hours or even only from dusk to midnight. Rates were from 15 cents per kwhr down. Then utility management saw the opportunity of utilizing plant through the daylight hours also, by supplying power to industry, and industrial power salesmen became important members of the staffs of all alert utilities.

Relative Amounts of Industrial Sales in KW and KWHR

The ideal would be to find industrial loads that would fill all the hours when plant capacity is not required for supplying the other classes of load. In practice this is not feasible, as electric power cost is generally such a small percentage (usually less than 2 per cent) of total manufacturing cost that plant working hours are most often determined by labor cost. Further, a utility is a service organization and generally a monopoly in that field. It must therefore supply power to all who wish it.

The ratio of industrial power sales to total kwhr sales will vary widely for different companies; so that there is no saturation level for industrial sales. My company, the Iowa-Illinois Gas and Electric Company, reached the stage in World War I when the daytime industrial peak demand exceeded the evening lighting peak in every month of the year and it has shown this characteristic distribution ever since. In 1949 our industrial power sales were 48 per cent of total kwhr sales. We would find it profitable to take on more residential sales and are making active efforts to do so.

We are also out for all the additional industrial power sales we can get at existing rates, because, as I shall show a little later, these sales increments are profitable at our present plant construction and operating costs. Many companies show higher percentages of industrial sales than ours, such as Niagara Mohawk with 62 per cent, and from all reports, they are making successful efforts to get more industrial business.

Characteristics of Industrial Sales

The reason most utilities are now actively seeking industrial loads is that the desirable characteristics of these loads far outweigh the undesirable characteristics, and furthermore, that these latter can, to a large extent, be compensated for in well designed rate schedules. Some of the principal desirable features of industrial loads are:

1. Large volume per customer.
2. High load factor (as compared with residential and commercial loads).
3. Diversity with respect to lighting peak (except for very high load factor industrials).
4. Low customer service cost.

The most prominent undesirable features are:

1. Subject to fluctuations of business.
2. Must be sold in competition with generating cost at private power plants, including diesel engines operated on natural gas and steam turbines exhausting to building heating systems and process steam loads.
3. Subject to wide and rapid variations, such as in
   a. Melting (electric furnaces).
   b. Rolling-mill operation.
   c. Hoisting, including strip-mining.
   d. Welding.

A manufacturer with a very rough load, such as a large electric furnace, will nearly always seek to purchase his power. An isolated generating station for such an industry would be very costly, if feasible at all.

Rate Schedules

When the characteristics of an industrial load are known, a rate schedule can be developed that will closely reflect the true cost of serving it. Because of the diversity of any individual load against all the others served, the utility's cost of serving will generally be lower than the manufacturer's own cost from a private plant. The desirability of the business to the utility will depend on the customer's willingness to accept the appropriate rate schedule, so a very important part of the industrial power salesman's task is to convince the customer that all provisions of the company's rate are fair.

The demand charge is the most important rate feature developed for covering the true cost of service and is the hardest to sell to the customer. Industries would usually far rather pay on a kwhr basis, as then their bills vary almost directly with the volume of their production. I believe it was Mr. Alex Dow who said the invention of the kwhr meter was a disaster to the utility industry. The demand charge quoted is usually a compromise between the utility's desire to cover the cost of service and the customer's preference for paying by the unit of energy received.

Demand Charge and Demand Cost

Except where power is sold by the Hp-year, or Kw-year, as from some hydro plants, the utility can collect as a demand charge only a part of the demand cost. This is natural because the cost per kw installed of a low-pressure private industrial plant is far less than the unit cost of a utility system

where operating economies justify high steam pressures and other costly features. The balance of the demand cost is included in the energy (kwhr) charge, which is readily accepted by the customer, as it is usually lower than would be the fuel cost alone in his own private plant.

Extending Demand Charges

With a "ratchet," extending the highest monthly demand to the bills of 11 or more succeeding months, payment can be assured of the fixed charges on the generating capacity that must be reserved throughout the year to take care of seasonal loads. When applied to a measurement for an appropriate time interval, such as one minute or five minutes, the demand charge can assure covering the investment cost of serving loads subject to wide and rapid variations such as those mentioned previously.

The risk of business fluctuations may be shared between the utility and the customer through a minimum charge which covers a portion of the power system investment cost required to serve the customer. The degree of protection afforded the utility depends on the length of the contract term and the ratio of the minimum charge to the total fixed charges. An annual minimum, higher than the demand charge, is usually included in contracts for stand-by service to customers having their own generating plants. Without such a minimum, the utility would risk failing to cover its demand costs, in the event the customer used the service only during breakdowns of his own equipment.

Of great value in recent years have been the fuel clauses incorporated in almost all industrial rate schedules. The margin of the selling price of energy over the fuel and labor cost is so small that it must be protected against fuel cost increases. If the fuel clause is based on say, 20,000 Btu per kwhr generated and coal is the sole fuel, this clause may be sufficient to cover also the increase in direct station labor cost.

Incremental Power Costs Versus Industrial Rates

Perhaps the principal factor leading many people to believe that there is no profit to the utility in industrial loads is their relatively low selling price per kwhr as compared with residential and commercial sales. For the Niagara Mohawk Corporation in 1948 and 1949, the average industrial sales prices were 6.0 and 6.5 mills per kwhr, whereas the residential sales prices were 2.65 and 2.62 cents per kwhr, and the commercial sales prices were 1.96 and 1.92 cents per kwhr. I do not have a cost analysis for Niagara Mohawk but I would expect to find that each class of business is bearing its fair share of the cost of service and is producing about the same return on the investment.

For my own company the return on gross plant required to service the industrial load was about 6 per cent, and the average margin on industrial sales as compared with the incremental cost was 1.5 mills per kwhr or about 14 per cent. The comparative selling prices were in 1949:

Industrial	1.24 cents/kwhr
Residential	3.13 cents/kwhr
Commercial ...	2.74 cents/kwhr

In the case of my company, the system peak since World War I has been an industrial one in the morning from 9:30 to 11:30. Therefore any increases of industrial load will directly contribute to the increase of the system peak and will not benefit from the diversity with the residential lighting load. Under these conditions, the profitableness of an industrial load will depend directly on the rate received as compared with the incremental cost of serving the load.

Low Industrial Peak Rate

Our industrial peak rate is among the lowest in our part of the country. The demand charge is:

- $2.00 per kw per month for the first 100 kw
- $1.50 per kw per month for the next 200 kw
- $1.25 per kw per month for all excess

The energy charge is:

- 0.8¢ per kwhr for the first 30,000 kwhr per month
- 0.6¢ per kwhr for the next 70,000 kwhr per month
- 0.55¢ for the excess over 100,000 kwhr per month
- 0.45¢ for the excess over 300 hours use of the maximum demand.

The fuel cost adjustment applies above 16 cents per million Btu but is not at present invoked as the average fuel cost is held down by the almost 70 per cent of natural gas used in 1949.

The increment costs of the Iowa-Illinois Gas and Electric Company in 1949 for industrial power, sold at a class annual load factor of 45 per cent were:

Demand Costs

(a) Generating Station, based on 58,000 kw addition to Riverside Generating Station, completed in 1949 at a cost of $125 per kw, a system reserve ratio of 30 per cent, station use and system losses of 10 per cent and annual fixed charges of 13.5 per cent..	6.2 mills/kwhr
(b) Distribution system based on $30 per kw and 13.5 per cent fixed charges	1.1

Production Costs

(a) Fuel and Purchased energy ...	2.9
(b) Maintenance ...	0.7
Total, incremental costs	10.9 mills/kwhr
Average Sales Price...	12.4 mills/kwhr
Margin	1.5 mills/kwhr

The higher load factor, lower distribution system investment, and very much lower customer service cost of industrial service fully justify the lower unit price at which it is sold as compared with residential and commercial service.

Sales in all three classes are vital to a successful utility. Now that most of us are caught up, or within sight of getting caught up, on installed generating capacity, we need your good work in selling more industrial load.

Correction

A MOVIE presented by Maxwell & Associates was inadvertently credited to C. L. Matthews of the Matthews Corporation in the EEI BULLETIN's report of the Transmission and Distribution Committee Meeting, March issue, page 100.

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Pioneer Work in Minnesota and South Dakota Rural Electric Projects

By E. A. Stewart

Interstate Power Company, Red Wing Project Director, 1923-1928

A talk presented before the Central Station Conference, Electric Industry Convention, North Central Electric Association, St. Paul, Minn., March 7, 1950

THE theme of this 1950 Convention of the Electric Industry is commemoration of twenty-five years of rural electrification in Minnesota. The basis of this commemoration is the starting of the Red Wing Project on the utilization of electricity in agriculture at Red Wing, Minnesota. The construction of the rural electric line completed in December, 1923, west of Red Wing, Minnesota, was the first experimental rural electric line project in the world.

Minnesota CREA Organized

This project was developed under the direction of the University of Minnesota, Division of Agricultural Engineering, in cooperation with the Minnesota State Committee on "The Relation of Electricity to Agriculture" which was organized in September, 1923. The Chairman of this Committee was James F. Reed, President of the Minnesota Farm Bureau Federation. Other members of the Committee were W. C. Coffey, Dean of the Department of Agriculture, University of Minnesota; Herman Schmechel, State Senator and farmer; Isaac Emerson, State Representative and farmer; A. C. Bryan, farmer on the Red Wing line; C. S. Kennedy, Otter Tail Power Company; Charles F. Stuart, Northern States Power Company; Wallace H. Heald, Minnesota Power & Light Company; and the speaker, who, at that time, was professor of agricultural engineering at the University of Minnesota, acting as Secretary and Project Director of the Committee.

The Project received financial support and cooperation from the Minnesota Power & Light Company, Otter Tail Power Company and Northern States Power Company (which company constructed the experimental line), from the North Central Electric Association and seventy-nine different manufacturing companies.

We might, incidentally, state also that the present century commemorates the discovery of electricity about twenty-five centuries ago. It took 2400 years after the discovery of electricity as exhibited by amber to discover any other source of electric energy. In 1800, it was discovered that electric energy could be transformed from chemical energy and in 1831, it was discovered that mechanical energy, through the use of magnetism, could be transformed into electric energy. This was the important discovery which led to the development of the dynamo.

It still took 48 years before it was possible to use electric energy to produce light through the incandescent lamp in 1879. It took 51 years after 1831 before the first electric lighting service was rendered to customers in 1882.

The First 508 Electric Customers

A little over 67 years ago, in 1882, fifty-two customers were being given electric light service by the Edison Electric Company in New York. By the end of 1883, this had developed to rendering service to 508 customers. It took twenty-five years after 1882 to develop and extend electric service to the first two million customers by 1907. It only took five years to extend the service to the next two million customers.

50 Years Later

In the second twenty-five years, following the start of electric service in 1882, service was extended to nearly twenty-five million customers in comparison with two million customers in the first twenty-five years. I am giving this information to show how any new industry or the application of any new scientific development has to take many years before the development really gets underway.

The curve showing the total number of electric customers, starting in 1902 with about half a million, made a normal natural growth, as explained above, up until the period of the depression reaching a maximum number of about twenty-four and a half million in 1930. Due to the depression, the number of customers decreased and reached a low in 1932. The curve shows that after that date, the increase in the number of customers followed a normal curve up until the beginning of World War II in 1941. Following World War II, the curve indicates that service to all electric users in the United States again assumed the normal curve, increasing to a total of approximately 42,850,000 by the end of 1949.

First Rural Electric Service

Rural electric service was started probably some time shortly after the beginning of the century for a few customers surrounding some of the larger cities where electric service was available. By 1917 it was estimated that about 70,000 farm customers had electric service and the government estimated that about 100,000 farms were being served by 1919. The growth in number of farm customers served during the next few years was very slow due to the fact that there was practically no equipment available for the use of electricity on farms except for lighting.

It was early recognized by members of the electric industry that electric service was highly desirable and necessary for farm life and a great deal of effort was expended in attempts to organize and promote electric service for farms during the period from 1915 up through the middle 1920 period. Very little progress was made because of the large investment required by the farmer for wiring and because of the large investment required in distribution lines to serve him with practically no other use than lighting available.

Shortly prior to the organization of the Minnesota State Committee, the American Farm Bureau Federation, in cooperation with the National Electric Light Association, had organized a

"National Committee on the Relation of Electricity to Agriculture" (CREA). Through the efforts of this Committee and after the start was made in Minnesota, twenty-two other states, in a very short period of time, organized projects through the Land Grant Colleges to develop uses of electricity on farms. Later on this spread to many of the other colleges. The so-called Renner Line Project was organized in South Dakota in 1924 under the direction of the South Dakota State College of Agriculture and Mechanical Arts at Brookings, South Dakota, with Professor Ralph Patty as Project Director.

Red Wing Project Equipment Loaned to Farmers

There was one very important difference in the manner in which the Red Wing Project and the Renner Project were developed. On the Red Wing Project, a large amount of the equipment was loaned by the manufacturers to the farmers with the privilege of buying such equipment at a later date, if they desired to keep the equipment; while on the Renner Project, the only equipment installed was the equipment purchased by the farmers.

It has been stated many times in the development of rural electrification by the R.E.A. that the original projects were developed on the assumption that farmers would use about 100 kwhr per month. In fact, some of the earliest projects were developed on the basis that the farmers would use about 60 kwhr per month. It has many times been mistakenly stated that no one ever dreamed that farm customers would use some 200 to 300 kwhr per month. This mistaken statement and the other statement that the farmers would use only about 100 kwhr per month were a result of a failure in adult education.

Higher Loads Anticipated

The Red Wing Project and the Renner Project were not based upon any such assumption. The wiring on the Red Wing farms was constructed so as to carry loads very much in excess of the figures given above. On many of the early R.E.A. projects, because of the mistaken idea as to prospective consumption of electricity on farms, many transformers of only 1-kva capacity were installed to serve such farms. Utilities, in general, had abandoned the use of 1-kva transformers long before 1935. On the Red Wing line, 3-kva transformers were installed at each farm, with three exceptions where 5-kva transformers were used. When the line was first constructed five ampere meters were installed for preliminary service but by August, 1924, these were changed to twenty-five ampere meters.

The customers' use, as developed on the Red Wing line, showed the possibilities of consumption on the farm running very much in excess of 100 kwhr per month. The results of the experimental work at Red Wing were published in a comprehensive bulletin by the Agricultural Experiment Station, University of Minnesota, under the title, "The Red Wing Project on Utilization of Electricity in Agriculture" in 1928. This was the most extensive bulletin of this type published at that time and apparently still stands as the most extensive experimental information published in regard to the utilization of electricity on the farms. Information given in this bulletin shows that during 1926 the average monthly consumption per customer was 295 kwhr. Some of this energy was used for experimental work, but in 1927, when less experimental work was carried on, the average monthly consumption was still 265 kwhr.

Early Electric Consumption

Five regular farm customers out of nine who cooperated in the project used in excess of 3000 kwhr during 1927. One customer, Emory Johnson, had an average monthly consumption of 577 kwhr. Because of the fact that the Renner project was carried out, as explained above, on a much different basis, the average monthly consumption was not as high as at Red Wing but these customers, back at that time, still had an average consumption of about half as much as those at Red Wing.

Referring again to the curve showing the growth of rural electric service, it will be noted that the curve turns up quite abruptly about 1925, indicating the effect of these different projects throughout the country which were beginning to show what could be done in the development of electric service.

In 1924, there were 204,780 farm customers in the United States. By 1930 this had more than trebled to a total of about 650,000. During the depression period, while the total number of customers being served by the utilities actually decreased, the number of farm customers gained slightly until by 1935 there were about 788,000 farms being supplied with electric service. Following the depression period, the number of farms being given electric service turned up abruptly in a similar manner to the increase in number of total electric customers being served by the utilities in the United States. Starting back sometime in the 1920 period, some few farms were being rendered electric service by municipal plants. It is estimated that perhaps some 30,000 farms were served by municipal plants by 1930.

R.E.A. Started

The Rural Electrification Administration was started in 1935 under an executive order of the President. The National Rural Electrification Act was passed by Congress in 1935 but very few farm customers were served by the R.E.A. by the end of 1936, probably about 6550 farms. From that time up until the end of 1949, rural electric service developed very rapidly until at the present time about 4,960,000 farms in the United States have electric service. About 2,390,000 farms are served by utility companies, 2,343,000 by R.E.A. borrowers and about 227,000 by municipal plants and other governmentally owned utilities.

The increase in number of farms served from 1936 up to about 1941 by the utility companies was approximately the same as the number served by the R.E.A. projects. However, during the period of World War II, the number of farm customers served by the utility companies increased very slowly due to the restrictions which prevented the utilities from securing transformers, wire, etc., to render service to the farms. During this same period, the R.E.A. projects continued to render service to an increasingly large number of farms. During the period from 1941 to 1944, utility companies rendered service to approximately 67,000 additional farms while the R.E.A. projects rendered service to an additional 218,000 farms.

Depression Affects Farm Electric Use

Electric service for farms in Minnesota and South Dakota has followed very much the national pattern with the exception that the number of farm customers in the strictly farm areas actually decreased during the depression. In 1920, there were 2920 farms receiving service in the state of Minnesota. By 1924, this had slowly increased to 4100 but by 1931, 14,206 farms in Minnesota had electric service from central stations.

This decreased until in 1934 there were only 13,783 farms receiving electric service. In a similar way, there were about 3040 receiving electric service in South Dakota in 1931 and this dropped down to 2852 in 1933 and slowly rose to 2928 by 1935.

Investors for Farm Service

Utilities have oftentimes been accused of not wanting or not trying to develop rural electric service. The only way for utilities to extend electric service in farming areas is for the utility to secure money from some investor to invest in the facilities and distribution lines. When the number of farm customers was actually decreasing during the depression period, does anyone think that it would have been possible for utilities to have raised money through the popular will of the people to extend service into farm areas?

As stated before, very little equipment was available for use of electric service on farms until after projects like the Red Wing Project were started and still only a nominal amount of equipment was available even in 1930. One of the outstanding developments in rural electric service during the 1920 decade was carried out by the Wisconsin Power and Light Company of Wisconsin. A report published in December, 1928, by this company showed that the number of farms served increased from 1624 on January 1, 1926, to 7292 by July 1, 1928.

At that time, 14.6 per cent of the farms in the area served were taking electric service. However, energy consumption was still very small. In 1925, the average was 36 kwhr per customer per month and by 1927 it was 52 kwhr per month. With such small consumption as this, neither the farmers could afford the cost of electric wiring nor could they well afford to pay adequate cost for service because of the large expense of some $400.00 per customer required to serve such farms. Therefore, the only solution to a real development of rural service for farms was to develop equipment and uses for electric service on the farms.

Early Rural Service Development

We believe that the development of rural electric service since 1935 owes its whole foundation to the experimental work which was started back in the 1920 period by the electric utility companies, the Farm Bureau Federation and the National Electric Light Association in cooperation with the colleges in the development of experimental projects.

A great deal of publicity has been put over the past twenty-five years somewhat of a political and a propaganda nature to make it appear that the electric industry was not developing farm service as it should and, therefore, the government had to step into the picture to develop farm electric service. I am sure that all electric utility men and people in general are very thankful that the R.E.A. was brought into existence so as to bring electric service to millions of farm homes.

However, it appears to be very much of a mistaken idea to think that a large number of farms would still not have had service if the R.E.A. had not been created. We must remember that still up until the end of the past year the utility companies were serving more farm customers than were served by the R.E.A. projects after fourteen years of effort by the R.E.A. with government money available for financing while the utilities still had to handle their financing through voluntary loans. However, the R.E.A. projects have undoubtedly made it possible for many farms in the scattered farm areas to secure service several years ahead of the time when such customers might have been able to receive service from the utility companies.

Absurdity in Gov't. Reasoning

I have made some point in this explanation to bring out the fact that a slowing up of the number of farms which were rendered service during the depression period, offered an opportunity to those who wanted to push forward government development of farm service but a similar case might have been made out for electric service to all customers in the United States because the actual number of customers receiving electric service of all kinds in the United States decreased during the depression period. We have heard much during this period of promotion of government assistance in farm electrification about electrification in Europe.

Many speakers have pointed to the fact over the past twenty years that rural electrification in many countries in Europe had exceeded the rural electrification in the United States by pointing to the fact that some 70 per cent to as high as 95 per cent of the rural customers in some European countries had service by 1935 while only about 11 per cent of American farms had electric service in 1935. There is a lot of difference between the percentage of farms served in the United States and the per cent of rural customers having service in Europe. There was no basis of comparison insofar as the data was concerned because farm service as we know it in America hardly existed in Europe in 1935 and still does not exist to any great extent.

European Rural Electric Service

During my survey of electric service in Europe in 1926, I was told by many individuals that electric service, constructed over lines out in the country to serve individual farms, hardly existed. Most of the rural electric service referred to in Europe was only service to the small rural communes. To a large extent over western Europe, farmers lived in little communities and operated their farms in the surrounding area. In some parts of western Sweden and in southeastern Norway, we did find some rural electric lines which were constructed to serve farms only. The countries in Europe often referred to are so small that in comparable areas in the United States we had many places where the percentage of farms served exceeded the percentage of so-called rural electrification in whole countries in Europe.

For example, at the time of the World Power Conference in Washington in 1936, a statement was made in regard to rural electrification in Holland. The report in regard to Holland stated that electric supply was available to about 98 per cent of the total population of Holland and that statistical data "makes it impossible to distinguish between the supply to rural and urban customers." The report also indicated that about 25 per cent of the population lived in rural areas and it was reasonable to assume that an appreciable percentage of the farms were without electric service.

Government Extension into Business

I refer to the publicity and methods used, not because the development of the governmental support to rural electrification was undesirable, but simply to point out that the people in this country must be on guard to see that a case is not made out by promoters of government extension into business for almost any type of business. We are all familiar with the fact that when Russia and other countries behind the Iron Curtain

(*Continued on page* 152)

What Is Needed in Selling Appliances?

By James J. Nance
President, Hotpoint, Inc.

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 6, 1950

THE electrical industry, although it had its beginnings almost 75 years ago, is still a growth industry. Ordinarily people tend to think in terms of young industries such as plastics and television, when the subject of growth industries is mentioned. Yet the electric utility industry is one of the fastest growing in the country today. Consumption of electric energy tripled in the 20 years from 1918 to 1938. Then, in the next 10 years ending with 1948, it tripled again, doubling its rate of growth of the preceding 20 years. Last year the rise continued, despite a somewhat slower pace of business from the post-war peak.

In the five years from 1945 through 1949, the electric utilities invested the staggering sum of $6 billion in added capacity to meet the soaring demand for power. By 1955 they will have invested another $9 billion to complete the expansion programs now planned, which call for a further rise of 30 per cent in installed generating capacity.

The Electrical Age

We don't have to seek far for the reason for this meteoric development. There is no commodity more essential to modern life than electrical energy. Without it our industrial age, which is often referred to as the Electrical Age, could not progress. Looking ahead I can see little improvement in our living standard that will not depend in one way or another on electric power.

Gentlemen, it is in the growth you have already achieved, and in the growth you plan that my industry finds the great promise of its future. Our future lies in translating the investment you have made, and are making into kilowatthours of consumption. In that sense your industry is as much interested as mine in seeing to it that the tremendous potential for appliance sales is converted into a reality. Appliances in homes provide the load you are building for, and they do so on more favorable terms, both as to rates and stability of demand, than either industrial or commercial service.

What I have said summarizes the fundamental long-term picture for both utilities and appliances. It can be described in one word—*Growth.*

1950 Appliance Outlook

To judge the immediate outlook for appliances—let us say the 1950 outlook—there are five factors which I think need to be considered. They are, first, the general economic situation, which will determine the number of dollars the American people will have available to spend over and above the basic necessities of food, clothing and shelter; second, the number of homes which will be added to the power lines in the year; third, the present degree of market saturation of the various appliances; fourth, the extent, intensity, and degree of success achieved by the selling effort put behind appliances; and fifth, the cost of appliances and of the power to operate them.

The general economic situation will, I believe, be very favorable. I won't take time to document that view before this group. We are all aware of the basic factors—the prospects for a heavy volume of construction, high federal spending for everything from vets to Europe, the abundance of credit, including consumer credit, the tremendous reservoir of consumer savings, big farm income underwritten by subsidies, and so forth. Specifically, I expect that personal income of the American people this year will approximate the $210 billion total of last year. This means that discretionary income, which is the sum consumers have left after providing for normal living requirements, will exceed $100 billion. In terms of 1950 prices I expect consumers to have somewhat more to spend this year than last on items of their choice such as appliances.

More New Customers

The 1950 outlook for the second element that I believe to be of major importance — new residential electricity customers, is also favorable. Two million homes were added to the power lines last year. They represent a practically virgin market. This year nearly 2 million more homes are expected to begin getting service, bringing the total number of residential customers for power to 40 million. Just for a benchmark, let's go back to 1940 and see how that figure compares.

In 1940, 25 million homes were getting electric service. When you consider this 15 million gain in wired homes, remember that for five years of the ten-year period in which it occurred, electrical appliances were out of production. We have heard many times in the last year that the pent-up demand that accumulated during the war has been satisfied. I think that is true of what you might consider urgent demand. But the potential market waiting to be converted into actual demand by promotion and salesmanship has, in my opinion, hardly been scratched.

Appliance Market Saturation

As evidence on that point, which is the third fundamental in the appliance outlook as I see it, let me cite a few facts on the market saturation of various products.

We all know that there are 8 million wired homes still using the old-fashioned icebox; that there are 12 million without electric washing machines; that only 18 per cent of the wired homes have electric cooking. On that point I might mention that the best research we have indicates that a high percentage of the 21 million homes using gas for cooking are looking forward to the time when they can cook with electricity. Our job is to make that "some day" come soon.

The rapid strides that the bottled gas industry made following the war when we were in a shortage period, are familiar to all of us now. While they added 5 million new customers during this time beyond city gas mains the pace has slackened somewhat and will continue to decrease as electric promotions are put into action.

Most of the homes which installed bottled gas never even considered buying an electric range. In fact, surveys

indicate that they were never called on by an electric range salesman when they thought that bottled gas was cheaper.

The potential market for electric water heating also is tremendous. Twenty-five million homes in this country do not use either gas or electricity for heating water. Between three-quarters of a million and a million new homes are being built each year. At the close of 1949 only 3¾ million homes or 10 per cent of wired homes had electric water heaters. And of those in service almost 90 per cent had been sold since the war. Here is a trend promising a huge load building opportunity.

New Appliances—New Markets

Many new major appliances have been developed that have created entirely new markets for us and for you. I am thinking of such appliances as the dishwasher, which produces approximately 20 per cent more revenue than the electric range and also practically necessitates the installation of automatic water heating equipment. The acceptance of this appliance is accelerating rapidly. Thirty-three per cent of all dishwashers in use at the end of 1949 were sold during 1949. The dishwasher saturation is less than 1½ per cent.

I am also thinking of the automatic washer, which not only produces a very substantial increase in revenue but also spreads the laundry load over the entire week and eliminates the peak demand Tuesday morning caused by the ironing load. The automatic washer has a saturation of only 5.7 per cent.

The automatic dryer is another new appliance which produces a revenue equal to the electric range. The saturation on dryers is only 0.6 of one per cent.

Cooperative Selling Job

These facts on just a few of the major appliances give some measure of the selling job that needs to be done. It is a job of such dimensions that all elements in the electrical industry will have to cooperate in their mutual interest. I would like to stress that point because, during the war and since, we have had many opportunities to discuss postwar trends in merchandising with electric utility company officials. Some seemed to feel that appliance acceptance has reached the point where it will continue to grow whether electric utilities merchandise or not.

As evidence that by no means a majority of electric companies feel this way, more than 20 major electric companies have returned to direct merchandising during the past six months. From a low of approximately 20 per cent during the appliance-short year of 1946, we now have 53 per cent of the utility companies directly selling one or more major appliances. I have firsthand information which indicates that more than 20 other major utilities will return to merchandising before the end of 1950.

Of course, the electric companies are not all jumping back into full-scale merchandising at one time. For example, they recognize that high saturation appliances do not call for continuous and vigorous promotion as do the lower saturation items. There are enough refrigerators in service for dealers' advertising and merchandising to carry the load. But electric water heaters, electric ranges, dishwashers, dryers, and other low saturation appliances require much greater sales push than dealers can provide.

Electric Ranges and Water Heaters

Electric ranges and water heaters seek to do a job that has been done by another fuel for a long time. People are creatures of habit, and unless they are told time and again of the advantages of electricity for those jobs they will buy what they bought last time. Of course, the gas industry has not done a good job on automatic water heaters, considering that they have been at it many years. This means only that the public must be sold on the comforts of automatic water heating. Most women agree that hot water is a good thing, but not more than 10 per cent of the nation's homes have any type of automatic heater.

Economists agree that there is a tremendous area for growth in the uses of electricity in the home. But, they also warn us that services and products for the home have plenty of very smart competition. Money spent for an automobile cannot go into home living; neither can the money that goes into an expensive vacation tour; yet, those industries, like many others I could name, are enjoying great growth also.

Simply, this means that we must protect our businesses by tremendous selling and promotional jobs. That is the only way that we can rest easy in the knowledge that we will get a reasonable share of the market potential for both appliances and electricity consumption. Manufacturers, distributors, dealers, and utilities, singly and jointly can't do too much to develop the market that literally surrounds us.

I try to be a very practical business man. Certainly I am no philanthropist. Yet, among the very first things that I believe is that the electrical business requires the best that each of us can give. However selfish we may be in behalf of our own individual company, we must contribute our full share to all phases of the business, which includes in addition to the electric companies, the appliance maker, 14,000 distributors and 75,000 dealers.

Electric Company Merchandizing

There have been many attitudes in various parts of the country on the place of the electric company in the direct merchandising of appliances. It has been my observation that small dealers and larger stores frequently are against the electric company selling refrigerators, washing machines, and other high saturation appliances. They seldom complain, however, against utilities pushing the lower saturation appliances. As we see it, this means that the electric company should resume its historic place as the promoter of ranges, water heaters, and other low saturation appliances. When an appliance reaches a certain point in the curve of public acceptance, everybody seems to want to sell it. When it requires pioneering, that job must be done by the organization which would like most to see it sold.

Increasing Residential Consumption

In the past your industry and mine have together done a pioneering, promotional and sales job second to none. You have seen the tangible evidence in your industry, not only in the increase in the number of your customers, but in the increase in the use of energy by each customer. The average home used 850 kwhr in 1938. Last year average consumption was 1684 kwhr, so that in all this 11-year period, which included the war with all its handicaps, home consumption almost doubled.

With present expansion plans during the five-year period through 1955, the electric utilities will have an annual increase that will be considerably greater than either the average increase during the past 11 years or that of any single year.

The all-electric kitchen and all-electric laundry are now in their in-

fancy. The rapid gains that these combinations have had since the war indicates that it is not over-optimistic to predict that the average home so equipped will produce a kwhr consumption of approximately 8500. On that evidence there can be little doubt that the growth in the period ahead will surpass anything we have experienced in the past.

This opportunity embodies a great challenge to all of us, but not a challenge that we will not be able to meet. Several factors are strongly in our favor. One is the fact that electricity and electrical appliances do more to make living easier and more pleasant for the average family—in other words, raise the standard of living—than almost any other product offered by American business. A second is that electrical energy is the outstanding bargain of the postwar period. Your industry has done a phenomenal job on its costs and rates. In the manufacture of appliances we have not been able to do any such job as that for many reasons, but we have succeeded in making our products an even bigger bargain than they were before the war, compared with other manufactured goods.

Postwar Prices

On the average, appliances today cost but 50 per cent more than prewar, and some are up as little as 30 per cent. By comparison, based on figures I had checked this week, the cost of home construction is up 204 per cent; so-called low-priced automobiles are up 85 per cent; food is up 107 per cent; clothing 84 per cent; and home furnishings 83 per cent. Actually, appliances are underpriced today among manufactured goods. I hope, but am not at all sure, that we can hold our present prices against the steady upward pressure of costs.

Gentlemen, my industry and your industry have, in their expansion programs, staked their faith in the development of a greatly expanded market and the maintenance of the American economy on the new high plateau. I, for one, have complete confidence that all we need to convert the present great potential into actual sales of both appliances and electrical energy is hard-hitting selling of the kind that built our industry in the 1920's, and in the years immediately preceding the war.

There is, I feel, no industry in which the people can take greater satisfaction in doing their job than yours and mine. Every kilowatt of electrical energy and every appliance we sell is bringing to our customers both very high value and a great and tangible contribution to their standard of living. The creation and merchandising of electrical energy is truly a public utility in a sense much broader than the mere legal concept of the term. The manufacture and sales of appliances, which translate that energy into savings of time, labor and drudgery, is an essential function of the performance of this broad public service.

Gentlemen, neither your industry nor mine have made little plans. We have demonstrated our faith in the American system of an economy of plenty—of more goods for more people. I have seen nothing since the end of the war to indicate that our faith is unfounded. We have been passing through a period of needed postwar readjustment with flying colors into what I hope and believe will be a period of stability and even greater progress.

The cycle of plans and events that have made possible this progress, maintained in the face of war, depression, coal strikes, and strict Government regulation, leave the manufacturer deeply indebted to the electric utilities. May I, on behalf of the manufacturer, acknowledge that indebtedness. I can only say that we stand ready to devote whatever time and investment is necessary to provide you with the types of appliances that will best meet your merchandising needs and the comfort needs of your customers. Many of these plans are now in progress, but rather than take your time to discuss them here, I am sure that they will reach you through the established marketing channels.

In urging you to increase your emphasis on direct merchandising of appliances or for some to engage in such an activity, I am speaking in the spirit of bringing the revenue increases that justify the many added investments. That this will be done I have no doubt, and as your company prospers, the manufacturer whose plans are parallel, will also prosper.

The national figures related to our market are uniformly favorable. Average family income is running double what it was before the war. In addition, our market contains 25 per cent more families than prewar. Finally, the people of our country want a progressively higher standard of living and are willing to work to achieve it. The electrical industry is a young industry, prepared to serve that want in more ways and more completely than any other single industry. In a word, the outlook is bright. Our success will depend on our own imaginations, resourcefulness, and energy.

Ebasco Seminar Spotlights Safety Training and Techniques

THE THIRD Ebasco Seminar in Public Utility Safety was held March 6-17 in New York City under the joint auspices of Ebasco Services Incorporated and the Center for Safety Education of New York University. Submitting pertinent questions and collaborating on their solutions were safety, personnel, and operating executives representing prominent electric and gas utilities in North and South America. Lecturers, moderators and discussion leaders for the various sessions included Dr. Herbert F. Stack, Dr. Walter A. Cutter, and Professor M. D. Kramer of the staff of the Center for Safety Education; Dr. Dawson F. Dean of American Home Products Institute, and William T. Rogers and George G. Blair of Ebasco Services.

In addition to classroom studies in effective speaking, the psychology of human relations, elements of successful supervision, motor vehicle fleet safety, fire prevention and protection, and current trends and techniques in utility accident prevention, seminar members saw practical applications of modern safety principles on a series of field trips in the metropolitan area.

"Particularly evident in the recent groups participating in these courses," says W. T. Rogers, Ebasco Safety Consultant and director of the seminar, "has been the increased number of operating executives in attendance. Their attendance at these seminars is a very healthy sign. It is certain evidence of the increasing interest of top management in the economic and human relations aspect of accident prevention activities."

Balancing Our Sales Job— The Role of Women in Our Industry

By O. R. Doerr

Vice President in Charge of Sales, Pacific Gas and Electric Company

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 4, 1950

IN our Company we believe there is a specific objective that can best be accomplished by women. In considering the place of men versus women in our industry it seems to me I shall be on firmer ground if I build at the outset "some fences" as to the fields of activity in which these two classes of employees can best function and to which their peculiar talents are best adapted.

Which Door?

The situation reminds me a bit of the predicament of a certain Britisher who found himself in need of medical attention in the socialistic atmosphere of Great Britain. He got out his medical card as issued by a paternalistic government and hied himself down to the nearest practitioner. Upon reaching the doctor's establishment he found himself confronted by two entrances, one of which was marked "men," the other "women." He entered the proper door where he found himself in a second corridor, confronted again by two doors, one of which was marked "under 25," the other "25 and over." Being of more than mature age he went through the designated door again and found himself for a second time in a corridor closed off by two more doors—one of which said "married," the other "unmarried." Being a man of family, he entered the "married" door and for a fourth time was confronted with the dilemma of making a choice before entering in what he hoped would be the sanctum sanctorum where the doctor presided. These last two doors carried the legend "labor" and "conservative." At this point he reflected for a moment and concluded that there was no reason to hide his political leanings, whereupon he opened the door marked "conservative" and lo and behold, found himself in the street just where he had started.

The problem of separating women from men in the utility industry is almost as complicated inasmuch as frequently we find in our business women performing very capably in jobs generally considered to be the birthright of the male sex, and, conversely, it has occasionally been found that some men turn in unusual performances in jobs generally considered to be held exclusively by women. In the latter category I have in mind the two or three rather nationally famous stage performers who conduct cooking schools around the country.

My remarks are to be confined to this subject as it pertains to men and women carrying on commercial, sales and public relations functions. This eliminates from this discussion any consideration of the broader aspects of the role of women in other activities of the utility business, such as operations, finance, personnel, legal, etc. Thinking then only of commercial, sales and customer relations, I should like to address my remarks to the specific problem of building business and improving customer relations with *existing* customers and existing utilization devices as distinguished from that of load building through the sale and installation of new appliances.

Sales Effort Often One-Sided

I think most of us will agree that sales effort too often is directed one-sidedly to the acquisition of new business through the sale of appliances and equipment to new homes and commercial-industrial establishments and/or the sale of new equipment, or equipment of larger size to existing customers. In many utilities the greater use of existing facilities—higher use factors of those devices, appliances and equipment already connected to the lines and for which capital investment has been made —is grossly neglected.

Furthermore, the possibilities of new business, in small increments to be sure, but large in volume in the overall, are tremendous. I need only cite an example of one company to emphasize this point. In my own Company, for example, the Pacific Gas and Electric Company, operating in the central and northern part of California, an area covering 90 thousand square miles, we are serving one million, three hundred thousand electrical customers (over one million are domestic). The additional use of only one kilowatthour per customer, per month, is equal to the added business that would result from the addition of 12,000 electric ranges or 4000 electric water heaters.

Effects of Increase

Now the added use of one kilowatthour per customer, per month, does not sound like too formidable an objective, and certainly the effect on the net from such business is far greater than would be derived from the equivalent kilowatthour consumption of the 12,000 ranges or 4000 water heaters mentioned as an alternate means of selling one million to one million, two hundred thousand kilowatthours—a volume of business approximating a quarter of a million dollars per annum.

Since this is true, should we not consider that a well-balanced sales job must call for the development of business from existing customers through their already installed utilization devices and through the Company's existing facilities just as much if not possibly a little more than through the slightly more romantic and certainly more spectacular method of acquiring an equal amount of business through new customers or new appliances? The answer, of course, is that both jobs should be done to their utmost to perform a really *balanced job.*

Male employees—salesmen, sales representatives, advisors, or what you will, appear to be more effective in the hard-hitting, aggressive, direct sales job of adding load through the addition of new customers or new devices. Women employees, home service advisors, home

economists, home economics writers, etc., are certainly more effective in the broad educational work necessary to build up use by the hundreds of thousands, and even millions of existing customers.

Home-makers Benefited

This is true because the people who are the recipients, for the most part, of such educational and promotional work are women—the home-makers in the various areas of service. Furthermore, these home-makers are eagerly susceptible to the information we have to impart, are greatly benefited by it, and are easily approachable by the women of our industry, many of whom, likewise, are home-makers. It is understandable, therefore, why men employees are not as readily received nor as effective in these fields.

The following brief analysis of the breakdown of one company's domestic customers into groups—minimum users, medium, etc.—according to consumption, will further clarify the sales job I believe women can do:

MONTHLY KWHR USE PER DOMESTIC CUSTOMER

(Breakdown of Customers estimated for 1949)

Consumption Group (Kwhr per Month)	*No. Customers*	*% of Total*
0-40	160,260	16.9
41-100	424,069	44.8
101-200	249,233	26.3
201-300	46,587	4.9
301-Over	66,836	7.1
TOTAL	946,985	100.0

Average *Annual* Use Per Customer, 1807 Kwhr

There is an interesting corrollation between the social and economic status of the home-makers in each group and their use of electricity. In the higher use groups, for example, the women customers can be reached readily through club meetings, parent-teacher gatherings, cooking schools and the like. They are the gregarious type.

Also, in this group are the hundreds of thousands of women who subscribe to the national women's magazines. They read the cooking and equipment sections of these magazines and, without a doubt, are greatly influenced through these media in using their appliances more.

In the large minimum bill segment, however, the contact is not ready made and because of the number, they are costly and time consuming to reach. In this group we find the women who have to watch their pennies in order to make ends meet. The fine job being done by the national magazines does not reach the majority of them. In fact, the only publications going into most of these homes are the local weekly newspaper and those sent without charge. These people, also, are the ones who have difficulty understanding much of the material that is written for home-makers because it is above their reading level.

What then are the methods by which this very large customer group, so in need of promotional stimuli—from their own standpoint as well as ours—can be reached? What are some of these media and how can they be made most effective in rounding out a good sales operation?

Media & Methods

One of the very best vehicles for reaching existing customers and for getting results in added use from existing facilities is the utility's customer publication, or house organ. If such a publication is regularly issued by a utility and has gained general acceptance it is most effective through a home-maker's page, an electrical equipment column or recipe section in bringing about greater use of home appliances. Such articles, carefully prepared and properly timed, can produce literally thousands of hours of added use.

Direct Mail Pieces

Perhaps even more effective than a page or column in the company's magazine is a direct mail piece produced especially for home-makers. I have in mind such a piece as West Penn Power Company produces quarterly and has put out for several years. With pictures, human interest stories and articles about their own customers they must *command* the readership and interest of every woman receiving this in her mailbox.

For a company serving thousands of small towns and rural communities covering a large area, a syndicated newspaper column is an excellent vehicle. For example, again referring to the area served by the Pacific Gas and Electric Company, there are more than 300 daily and weekly newspapers. In all of these papers we carry regular paid advertising copy and in a very large number—growing steadily—our syndicated home-making column is being used. The copy for this column is very carefully written *for the group we are trying to reach*—in fact, I understand that it is written in sixth-grade-level language. These columns are run under the signature and picture of local division home economists, thereby establishing them as the source of this information and building their prestige in each community.

Needless to say, many hundreds of thousands of users of electricity are reached in this manner, much information is passed on, and a lot of additional appliance utilization is brought about, especially in the minimum use category, through the suggestions and advice printed in the column. As a matter of fact, surveys and spot checks have confirmed—not to an exact degree—but at least to a reasonably acceptable point, the value of such promotion.

We have found that *small* cooking schools, rather than large ones, planned for each specific group we are seeking to reach and conducted for these people in their own environment, bring the best results. Kitchen parties or demonstrations, where one home-maker invites in eight or ten of her friends or neighbors, are another intimate and successful activity.

Slide Lectures

Another medium, less costly than appliance demonstrations or cooking schools, is the slide-lecture presentation. This medium has been extensively developed in our company due, primarily, to the fact that we do not have too many meeting rooms or auditoriums in our offices. However, it has proved to be a boon in mass education. It enables us to reach fairly inexpensively a large segment of one million and more home-makers scattered over a large geographical area.

Also, it has provided thousands of opportunities, otherwise not available, of reaching P. T. A. groups, women's clubs, church organizations and the like, because it provides a means of taking programs *to* these groups rather than asking them to come to the utility. With these colored slide-lectures it is possible to tell visual stories on kitchen planning around modern electrical appliances; laundry planning around modern laundry equipment; home lighting, home freezing, many phases of food preparation and food preservation.

Another very effective activity for reaching existing customers is a program for home economics students of junior high, high school and college levels. And may I repeat—a program for *students,* in this case, rather than for the teachers. Quite recently an outstanding educator, the supervisor of home economics in one of California's largest school systems, pointed out that much of the material furnished to schools by equipment and utility companies was ineffective because so many teachers do not have the ability to transpose it down to the level of the students they are teaching.

Upon the advice of this supervisor, in our Company we are now producing classroom projects on each piece of electrical equipment. These are being written for sixth grade level (this means simple language, not necessarily talking down to the kids); are being printed in primer type and are being illustrated in detail.

Demonstrations, talks and lectures given by home economists before student groups should also be carefully planned for the level of the group.

Most utilities, for many years, have worked closely with the *home economics* departments of schools. A much *broader* field than this is open through these institutions. In other words, if we are reaching *only* the girls who take home economics we are not doing a thorough job. Assembly programs of interest to *all* students have been produced by several of our western companies and programs of interest to all girls are not too difficult to dream up.

In any case, these youngsters should be reached with our message of greater convenience and service from electrical appliances. They, as well as the girls who take home economics, will be our future customers. Also, they, as well as the girls who take home economics, can take our message home.

As far as the teachers themselves are concerned, only the surface has been scratched in bringing them up to date on what is new in the electrical appliance field and the advantages of living electrically. This has to be a continuing activity and can be done three ways —by personal contact with teachers, through printed material furnished to them and through demonstration meetings or institutes.

Just because this group are teachers does not necessarily mean that they can read about and understand all of the advantages described in the written material which is furnished to them. This point was very forcefully brought out during an Electrical Living Institute which was conducted for teachers last year in San Francisco. The comments from these teachers proved that they had very little conception of these advantages and small appreciation or enthusiasm until they had seen the appliances and equipment demonstrated.

Still on the subject of schools, one of our western companies—the Southern California Edison, has proved what a home-making laboratory planning program can do to sell electrical living. The manufacturing companies are to be complimented also on their very fine equipment plans for schools. However, it must be conceded that it takes hard-hitting promotional work at the local level to put over any school modernization program. Boards of Education must be made to feel the necessity for modern home-making departments before they will appropriate the necessary funds.

I hardly need to point out the potential selling force of these up-to-date departments. The teachers and students are sold firsthand by working with modern appliances; the students take the industry's message home to their parents, our present customers; and most important, the girls themselves, our future customers, know what it means to live electrically.

Perhaps the five examples described will illustrate how the sales job can be balanced and how women in our industry can play a most important role in doing this balancing job.

There are two other fields equally susceptible to exploitation through women sales personnel. These are home lighting and kitchen planning. In all I have discussed five fields, each one calling for women with special talents, training and personalities—home economics and home service; writing for home-makers; school counseling or laboratory planning; home lighting and kitchen planning.

It is my belief that the cost of doing business today has reached such levels that we can hardly afford any longer the very high cost of trying to do this job by individual customer contact. In our own Company we have found this condition true to the point where we feel that we are no longer justified—from a cost standpoint—in making individual calls on new users of major electrical appliances, for example. We realize our obligation, but have concluded that such educational work in the use of appliances by new customers must be done on a group basis. Furthermore, when dealing with as many customers as a million or more it is almost essential to operate on a mass education or mass contact basis. Not only do we feel that we get more for our money through a program of this sort, but we believe it is absolutely essential in maintaining and increasing the use of electricity by existing customers. Only through such a program do we feel that a balanced sales job is possible. The evidence of the effectiveness of the plan speaks for itself.

Alex Dow Awards Honor Three Detroit Edison Employees

ALEX DOW Awards for meritorious service were presented to three Detroit Edison men at a dinner in the Statler Hotel, Detroit, Mich., March 31.

Recipients of the awards were Arthur K. Hurlburt, retired employment manager; John Stasz, an ironworker at Edison's Marysville power plant; and Peter Helmers, managing editor of *Synchroscope,* company magazine.

Each received a $100 U. S. Saving Bond, an engraved watch, a lapel pin and an award certificate. Presentations were made by Detroit Edison president James W. Parker.

The Alex Dow Awards, which are annual, were established in 1946 and named in honor of the late head of the company, a pioneer in the electric utility industry.

Mr. Hurlburt organized the first Detroit Edison employment department more than 30 years ago, and directed it until his retirement.

Mr. Stasz was honored for heroic conduct in attempting to save the life of a fellow-worker burned by flash explosions at the Marysville plant. Disregarding continuing blasts, Mr. Stasz tore blazing garments from the victim's body with his bare hands.

Mr. Helmers, the third Award recipient, was cited for outstanding editorial contributions to The Detroit Edison Co.'s employee publication.

Credit and Collection Experience of United States Gas and Electric Industries

Ratio of Outstanding Dollars to Sales Dollars Shows Increase for the Period July 1 to Dec. 31, 1949

THE ratio of outstanding dollars to sales dollars shows an increase for the United States, according to the latest six-months survey of credit and collection experience for gas and electric industries in the United States conducted jointly by the EEI-AGA staffs, under the supervision of the Credit and Collections Committees of the EEI and AGA accounting divisions.

While this condition did not prevail in all sections of the country, sizeable increases in the New England, Mid-Atlantic, and Pacific States areas more than offset the favorable results obtained in the other areas.

Increase in Dollar Sales

The dollar sales continue to show a substantial increase except for the New England and Mid-Atlantic areas which show slight decreases. One company in the New England area reported that the decrease in sales was due to smaller sales for resale to other producing utilities purchasing part of their requirements from the respondent. A rate reduction by one large company in the Mid-Atlantic area adversely affected the results in that area.

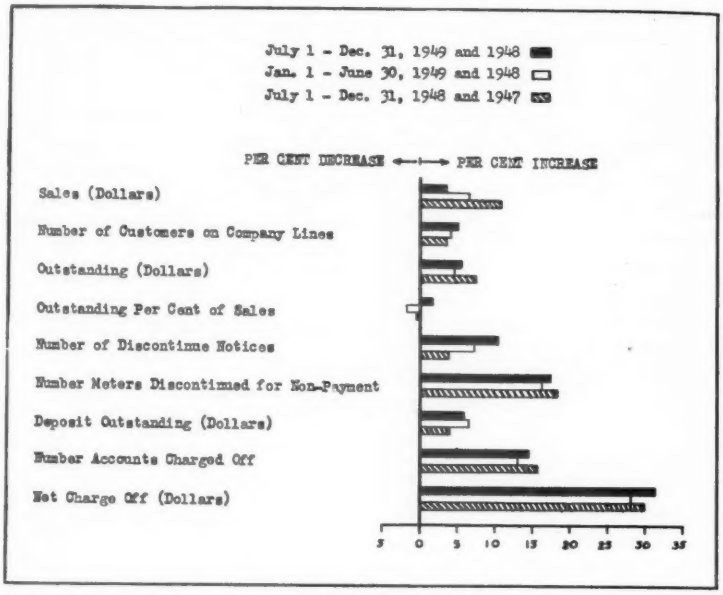

July 1 - Dec. 31, 1949 and 1948
Jan. 1 - June 30, 1949 and 1948
July 1 - Dec. 31, 1948 and 1947
PER CENT DECREASE
PER CENT INCREASE
Sales (Dollars)
Number of Customers on Company Lines
Outstanding (Dollars)
Outstanding Per Cent of Sales
Number of Discontinue Notices
Number Meters Discontinued for Non-Payment
Deposit Outstanding (Dollars)
Number Accounts Charged Off
Net Charge Off (Dollars)
5 0 5 10 15 20 25 30 35

Fig. 1—Graph of Credit and Collection Experience of U. S. Gas and Electric Industries

Number of Customers Gains

The number of customers added to company lines continued at a more accelerated pace than for the previous periods.

Outstanding

The outstanding has increased in all sections of the country with the exception of the West North Central area.

(*Continued on page* 149)

Reflection of the Credit and Collection Experience of the U. S. Gas and Electric Industries, July 1, 1949 to Dec. 31, 1949

Percent—Increase or Decrease over Corresponding Period—1948

	New England	Mid-Atlantic	East North Cent.	West North Cent.	South Atlantic	East South Cent.	West South Cent.	Mountain States	Pacific States	United States Totals
Sales (Dollars)	-.03	-1.6	5.3	6.5	9.6	6.2	9.2	7.9	2.4	3.4
No. Customers on Company Lines	2.1	1.2	2.1	3.1	6.7	8.4	18.7	5.4	5.6	5.0
Outstanding (Dollars)	3.2	4.3	2.8	-1.8	10.6	7.1	9.4	4.9	7.1	5.3
Outstanding % of Sales	3.6	5.9	-1.5	-7.8	.8	1.3	.1	-2.9	5.1	1.8
No. Discontinuance Notices	4.6	4.2	25.3	-5.4	3.8	12.9	29.2	77.0	31.6	10.3
No. Meters Dis. N. P.	20.5	7.2	34.9	33.2	16.5	17.1	32.4	30.6	24.6	17.2
Deposit Outstanding (Dollars)	5.8	2.8	-11.4	2.8	14.5	7.6	8.8	2.3	-3.7	5.9
No. Accounts Charged Off	11.3	-1.0	1.4	11.2	26.5	41.8	20.4	49.3	28.7	14.4
Net Charge Off (Dollars)	26.8	- .8	19.1	43.3	48.1	68.6	55.3	76.2	47.2	31.1

Report on Industrial Sales Activities

By Robert G. Ely

Public Service Electric & Gas Company, and Chairman, Industrial Power and Heating Section, Commercial Division, EEI

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 4, 1950

SELLING power over the last ten years has required tremendous versatility both on the part of power sales organizations and sales management — Versatility in that men and management have had to be alert and quick in their adjustment to the changing needs of industrial customers.

Lightning fast changes — from the sudden need to provide assistance for the expansion of service facilities at the onset of the war—to aid in the search for transformers, switchgear, wire and cable—to help in the selection of improved processing methods for war material developed around new electric power applications—to the search for subcontractors and suppliers—to tailoring production to capacity—to the adjustment of oversize war production plants to peacetime production levels—to the study again of new methods of producing peacetime products at minimum cost. These have been the basic changes and to them have been added special customer problems created by the nation-wide coal and steel strikes.

Acid Test of Customer Acceptance

How well have we done? Have we met the acid test of customer acceptance? I think we have!

We have developed power sales organizations with a real concern in helping customers improve production methods, lower manufacturing costs and maintain profit margins. We have developed power salesmen who know how to help lower costs through increased application of electric power in customers' plants—men who today are more than power salesmen—in itself a high estate—men who today rank with the good industrial engineers in the country.

Today these men have a fertile field for sales promotion among present industrial customers. These customers are still appreciative of the splendid assistance given them during the last few years. We have earned the confidence of these customers and we want to retain it in our efforts to build industrial power sales revenue.

The versatility of our industrial sales organizations and management will be tried again in the period immediately ahead and, I trust, not found wanting.

Let's take stock of the industrial power sales picture as it stands today.

Markets

First — markets! Our customers are anxious to use to the fullest extent the expanded manufacturing plant that has been completed since the war. This new plant has brought lower and lower manufacturing costs for the 20 or 30 per cent of new productive capacity it represents. It has brought lower manufacturing costs through the increased application of electric power to processing methods.

Already the need for plant modernization—in reality, the more complete electrification of the balance of our customers' plants—has become a "must" to assure their survival. This pressure for modernization, the development of new power applications for processing and production and the increase in electric power requirements for testing and research, assure us of large markets for industrial power sales—markets in which growth possibilities far exceed those normally dependent on population increase.

Responsibilities

Second—responsibilities! Some years ago, the Post War Planning Committee of the Edison Electric Institute, in its report on Industrial Power Markets, stated that the responsibility of a power sales organization was three-fold:

1. The retention of present business in the face of competition.
2. The full electrification of each industrial plant in the territory, with emphasis on the improvement of the competitive position of that plant in its own industry.
3. The sound industrial development of the territory served.

What are we doing about fulfilling these responsibilities?

It is important to note that inflated installation and equipment costs have increased the fixed charges applicable to a proposed power plant to the point where, in many cases, they become the controlling factors. It has become more essential than ever that, in addition to discussing operating costs with the customer's engineers, depreciation, obsolescence, and federal income taxes must be discussed with customers' accountants to determine the true comparison of purchased and privately generated power costs.

The Industrial Power and Heating Section of the Edison Electric Institute has just released for printing a new supplement to the Steam Competition Section of the Power Sales Manual, which will provide much valuable information for the study of comparative power costs. Copies will also be available in such a form that distribution to the engineering personnel in plants of customers considering power plant installation will be very worthwhile.

There has been little diesel competition, though there is evidence of a rising interest in the use of dual fuel engines in sewage disposal plants.

Subsidized Competition

Concern is expressed, however, by members of the Industrial Power and Heating Section over the rapid increase in subsidized competition from governmental bodies at all levels. Concerted action to meet this competition is difficult and exchange of information on problems met locally has proved helpful.

The full electrification of our customers' plants will absorb the best efforts of most of our sales organizations during the next few years. With the broader conception of the industrial power sales developed during the last ten years, it is essential that our sales forces be adequately equipped to do the job. This requires men, training, and tools.

From analyses that have been made, it would appear that most companies have succeeded in building sales organizations to nearly adequate strength to do the job ahead. Companies have developed training courses, many based on the Power Sales Manual and the Industrial Sales Training Handbook, for the

new men and a review for the experienced personnel.

Part of the work of the Industrial Power and Heating Section of the Edison Electric Institute, which has been particularly active during the past two years, has involved the preparation of training material and tools in the form of Power Sales Manual section revisions and supplements. I have already mentioned the supplement to the Steam Competition Section. Just released recently is the new Induction and Dielectric Heating Section, prepared by the Detroit Edison Company, under the guidance of Earl Kavanaugh, which is probably the most outstanding treatise in the country on the subject.

A revised section on Industrial Refrigeration, discussing our expanded markets in this field, has just been released for printing. Revised sections on Adequate Wiring and on Industrial Development will be released to the printers in the next few weeks. A new Metal Melting Section of the manual is in the early stages of preparation. The entire manual has been reviewed carefully and, on completion of these supplements and revisions, it will provide thoroughly up-to-date material for training and reference.

Electric Heating Schools

The Section has also sponsored two electric heating schools, the first given by the General Electric Company in September, 1948, and the second one by the Westinghouse Electric Corporation in March, 1950. These courses have provided our sales organizations with excellent basic information in the application of electric heat to industry.

In addition, the Section is continuing its policy of circulating throughout the utility industry information on new electrical equipment and new applications of electric power in industry. Cooperation in the collection and dissemination of this material has been extended to regional power sales organizations throughout the country.

Certainly the training materials and tools have been provided to assist in attaining our goal of complete electrification of industry.

The "sound industrial development of the territory" is being given much attention by many companies. In addition to the new Manual section on the subject, a Survey of Industrial Development Activities of section member companies has been completed, which indicates growing attention to development programs. This survey will be expanded in cooperation with the recently established Rural and Urban Development Committee of the Institute.

After this short review, which cannot include many details, it is apparent that our three basic responsibilities in industrial power sales have been seriously accepted and, what is more, we are doing something about them.

We have discussed our "markets," our "responsibilities," and the third point I want to discuss is our "methods."

Methods

The number of our industrial customers has always been such that we have been able to give personal attention to each customer. In making sales we have followed each problem and application through to completion with our customers on a personal basis. Our good industrial customer relations during the past ten years stem from this policy. This fundamental method of selling has always been eminently successful and we must insure its continuance in future sales promotion plans.

Pressures for increased power sales to load our new generating facilities have stimulated a search for methods to accelerate industrial load additions to our systems. The new Sales Policies and Methods Subcommittee of the Industrial Power and Heating Section has recently completed a survey of power sales methods and policies of section member companies. It is too early to draw specific conclusions from this survey.

There is some thought that the experiences of our commercial and residential sales groups in mass sales promotion can be adapted profitably to the industrial sales field. Experience with the Westinghouse "Productive Power Show," now on the road, and with the General Electric "More Power to America" program should help us materially in planning future promotional activities.

Electric utility companies sell service —service alone. It has been to their advantage to promote and assist in selling electrical apparatus which will use this service. Every established electrical equipment manufacturer can count the power salesmen of the electric industry as members of its sales force. On the other hand, the electric industry can also count electrical apparatus salesmen as members of its power sales organization.

There is a common interest that should bind the industrial sales organizations of both groups closer together than has been evident in recent years. Perhaps there has been too much business. It does seem to me, however, that equipment sales and power sales will grow more rapidly if the mutual interest and cooperation at management levels reaches out more fully into the field where sales are made.

One more thought and that is—the possibility of the concentration for a stated period sometime in the not-too-distant future of the sales promotion activities of electrical equipment manufacturers and utility companies on one of the major markets, for example, "electric heating." During this period, manufacturer and utility advertising would be devoted to the theme that industrial process heating must be "electrical—of course." Sales efforts of the entire industry would be directed toward selling the service and the equipment. Effective coordination can be worked out and the results of such a concentrated sales activity would be of immeasurable benefit to the electrical industry. Power sales organizations of the electric industry are interested in the development of such a program.

Increased Business Potentialities

To summarize, power salesmen have earned the confidence and respect of customers through the assistance they have given in solving many special problems during the last ten years.

Power salesmen have even larger markets than in the past—markets that have grown because of many new developments and because of the improvement in the relative economics of central station service and other energy sources—markets that afford great opportunity for increased business.

The Industrial Power and Heating Section of the EEI has provided training and reference material in considerable volume to assist power sales organizations in fulfilling their basic load building responsibilities.

Power sales management is giving serious consideration to the development of sound sales promotion methods which will involve the cooperation of all branches of the electrical industry engaged in industrial sales promotion.

Let us demonstrate once again the versatility which has earned such high regard for our power sales organizations.

Industrial Lighting—Stepchild of Industry?

By J. Mason Guillory

Manager, Industrial and Commercial Division, New Orleans Public Service Inc., and Chairman, Industrial Lighting Committee, EEI

An address before the 16th Annual EEI Sales Conference, Chicago, Ill., April 4, 1950

IN ORDER to analyze the value of Industrial Lighting to the utility, it is necessary that we take stock of the overall conditions and problems facing the industry today, the solution of which will do much to insure the continued financial stability of the industry and of the individual companies.

The problem referred to is one which can be stated rather simply: How to maintain adequate revenues and earnings in the face of costs and expenses which business analysts* and other students of our nation's economy, almost without exception, predict will remain at their present high levels or even increase for a considerable period into the future.

Expansion Program

That the cost of installing new capacity has risen considerably in the last decade is quite well known. However, in spite of this, the vastness of our industry's program of expansion would have been hard to visualize prior to 1940.

An unprecedented high in plant expansion expenditures was reached in 1949 by the privately owned electric utilities. It is estimated that last year about 5½ million kw of effective generating capacity was added together with necessary distribution and transmission facilities, costing about $2.1 billion.† Preliminary reports indicate that substantially the same size program is planned for 1950—and 1951 is expected to see the installation of an additional 4,850,000 kw. From V-J Day through the end of 1951, the tax-paying electric utilities will have added or scheduled some 21,000,000 kw of effective generating capacity or a 52 per cent increase during the 6-year period.

It is the responsibility of the Sales Departments of our individual companies to insure that full use is made of these facilities and that electrical loads having desirable characteristics be actively promoted and sold.

Sales research and market analysis will be called upon to an increasing degree to indicate to us what types of loads our Sales Departments should actively promote so as to fill in the valleys in our generation curves. We stand on the threshold of our biggest sales opportunity for the future through "selective selling" to maintain and improve our overall load factors.

Individual Sales Problems

It is obvious that each company's sales efforts will differ to some degree as will the individual utility's problem of market research. What may fit the conditions of a company in one part of the country may be far from satisfactory for a company with different types of consumers and different sales problems.

More important even than selling in large volume is the necessity for selling that type of load which will result in a net profit. It is, of course, impossible to fully control the type of load we will be called upon to serve, but it is more important than ever before to make sure that loads which are acquired through our own promotional and selling efforts will make a contribution to net income.

Plant Investment Costs Rising

Repeating our previous statement, the investment costs in generating plants and other facilities are inevitably rising as the high-cost plants we are adding at present become a larger and larger part of our total investment. Of course, the new generating plants coming on the line will have higher efficiencies than the older units, which will tend to reduce operating expense and may, thereby, tend to lessen the impact of the higher cost kilowatts on our break-even points. It is estimated that on the basis of 1939 = 100, the indices of construction costs by 1948 had risen to the following values: distribution costs, 185; steam-electric stations, 175; building costs, 210; transmission line cost, 165; with the index for the entire plant about 170. Therefore, a kilowatt of generating capacity which cost $80 to $100 in 1940 may have risen to $140 to $175 by 1948.* The cost of labor, fuel, and maintenance materials has also increased at a rapid rate in the last decade. All of these factors tend toward higher operating costs and a lower rate of return.

The publication *Electrical World* completed a survey some time ago which revealed that the electric utility industry expects to spend approximately $8.7 billion in the five-year period ending in 1953.† Of the $8.7 billion mentioned before, a major portion must be in the form of new money borrowed from people who believe that our industry will provide them with a fair return on their investment. The part of this financing program which requires the raising of debt money through the sale of bonds does not appear to present any serious problem to electric utilities, as so far, sufficient amounts at reasonable rates have been available to meet requirements.

Equity Financing

Approximately one third of the $8.7 billion needed is expected to come from equity financing. Equity financing or the sale of an interest in a utility through the issuing of stocks, caused some concern a few years ago. Today, utility common stocks are in good demand. This is indicated by the tabulation in Moody's of the average selling price of 24 utility common stocks. In February, 1949, this price was $26.93 per share compared with $31.91 per share in February, 1950. However, such stocks are always sensitive to changes in earnings potentials. It is, therefore, essential to maintain strong evidence of steady earning ability, to assure sustained public demand for our common stock.

Our industry has an enviable record for rate reductions during the long period beginning in the 1920's and continuing until the middle 1940's. Electric

*Source: Prof. S. H. Slichter, Harvard University, EEI BULLETIN, May 1949.

†Source: EEI BULLETIN, Dec. 1949, p. 435.

*Source: EEI BULLETIN, June 1949, pp. 187, 188.

†Source: EEI BULLETIN, July 1949, p. 257.

utilities until recently have been able to offset rising costs by increasing plant efficiencies and with increased sales, plus the application of fuel clauses in some of their electric rate schedules. However, conditions are now such in many companies that sales of the wrong type of load may have the effect of decreasing rather than increasing the net return.

Selective Selling

In the category of wrong type of load may be included those which contribute excessively to yearly peak without consuming energy on a high annual usage basis—those loads which do not provide enough overall return to pay for the cost of serving them. If future costs are not to be unduly forced upward, ways and means of increasing sales of kwhr per kw of demand must be found which simply means the application of the well known but still potent phrase—"selective selling."

One such way of increasing the sale of kwhr per kw of demand, which in the opinion of many utility men is most promising, is the active promotion of the advantages of industrial lighting.

In spite of the fact that the fluorescent lamp is more than twice as efficient as the generally used sizes of incandescent lamps, the well designed "F" installations, calculated to produce upward of 30 ft-c, require more watts per square foot and more kilowatthours than the former poorly designed incandescent systems.

Lighting to Improve Efficiency

Many plants which were built for war production are now engaged in producing goods for civilian use and practically all of them are well lighted. These will be in competition in many cases with our older local plants. Our customers will need all the help they can get to stay in business in the next few years, and should be looking for every means possible to improve efficiency and to cut production costs. The difference between profitable operation and going out of business for some plants may lie in higher quality products, fewer rejects or more efficient production, all of which are favorably influenced by good illumination.

Have you ever considered what it means to a community to have a plant close down permanently which was responsible for the creation of 500 jobs? Not only is the loss of the sale of electric energy directly to that plant immediately felt, but before long, that loss becomes noticeable in the electric consumption of commercial and residential accounts.

The U. S. Department of Labor has helped provide a partial answer to the question—"How will the loss of 500 jobs affect purchasing power in a community or area?" Fig. 1 visually indicates the distribution of family expenditures, totaling $1,502,000, that will be lost to the community due to the termination of 500 jobs. Obviously, the loss of business as indicated will directly affect the businesses in your area and indirectly affect your sales to them.

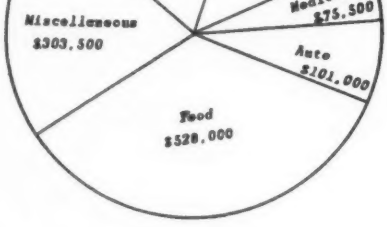


Fig. 1—Chart of Decrease of Family Expenditures of $1,502,000 Annually Due to Loss of 500 Jobs

It is of extreme importance to us, therefore, to do all within our power to keep our industries on a profitable basis.

But too often, I'm afraid our industrial salesmen, and perhaps sales managers, are not appreciative of the importance of industrial lighting in this connection, and pass up opportunities for building company revenues as well as helping customers remain in good competitive position.

Industrial salesmen are prone to talk power and motor applications, much of which may be called "gravity, or request," business. May I ask the question, how much honest-to-goodness original selling effort is being done in the industrial field? I believe that you will agree that there is plenty of room for improvement in this respect.

I have talked thus far about the need for selecting specific types of services for strong promotion effort and have stated that industrial lighting is one of these. I hope to convince you that this is a factual statement and that while lighting may contribute to company and system peaks, probably no other peak kilowatt brings in nearly as much revenue as the lighting kilowatt.

In early 1950 a questionnaire was

ANALYSIS OF INDUSTRIAL LIGHTING LOAD

Type Plant _____ Sq. ft. area _____ Hrs./day _____

Type General Lighting: Incandescent ___ . "F" ___ . Other ____ Av. f.c. _____

Total present connected lighting load _____ KW

Est. total connected lighting load if entire plant lighted to standards KW

	Power	Lighting
1. Transformer capacity KVA	_____	_____
2. Normal demand	____ KVA ____ KW	____ KVA ____ KW
3. Ratio Transformer capacity / KVA demand	_____	_____
4. Average KWH per month	_____	_____
5. Monthly load factor	_____	_____
6. Percent of total demand	_____	_____
7. Percent of total KWH	_____	_____

Comments:

Return to: J.H. Guillory
New Orleans Public Service Inc.
P.O. Box 340 New Orleans 9, LA.

Submitted: _____
Company _____
Location _____

Fig. 2—Questionnaire on Industrial Lighting Load

sent to all members of the Industrial Power and Heating Section of the Edison Electric Institute, requesting details about the lighting in typical industrial plants in each utility's service area (see Fig. 2).

This survey was set up so as to get data on the lighting in a large number of different types of industries. It is felt that the evaluation of this information, in effect, provides a yardstick by which we can all measure the utility benefits of industrial lighting as well as determine the potential market for this load in our individual electric service areas.

Lighting vs. Total Demand Classification

It was, of course, necessary to use some basis to tabulate the questionnaire in order that the data would, if possible, establish some logical pattern. In an effort to select those types of operations which constitute the most profitable prospects for industrial lighting promotion, three different grades of lighting installations were arbitrarily set up on the basis of the relation of the lighting demand to the total demand. In setting up these classifications it was seen that in several types of industries, the opportunities to sell large industrial lighting loads were limited—due to the nature of the operations.

Poor — Lighting demand (kw) less than 1/10 of total demand

Medium — Lighting demand (kw) between 1/10 and 1/3 of total demand

Good — Lighting demand (kw) 1/3 or more of total demand

Dispersion of Survey Data

Of the 89 plants upon which survey data was available, roughly 1/6 fell in each of the good and poor categories with about 4/6 being classified as medium. In this method of grouping, it must be remembered that the terms "good," "poor," or "medium" do not refer to an adequate, substandard, or average lighting installation but only to the ratio of lighting demand to total demand.

As a guide to proper and economical promotion and selective selling, the survey indicated that certain types of manufacturing plants fell into each of the three classifications established, as follows:

Poor — Foundries, paint, steel fabrication and so-called heavy industries

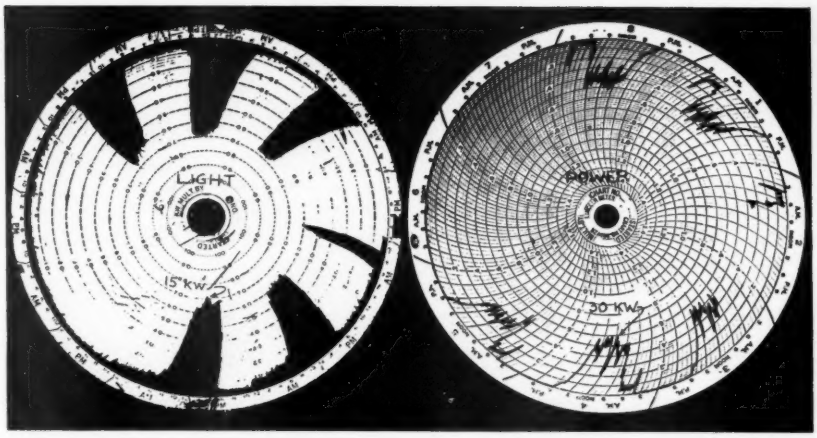


Fig. 3—Light and Power Kw Demand Charts of Small Fiber Container Manufacturer for One Week Period

Medium — Printing, metal plating, food processing, machinery, transportation equipment, textiles

Good — Apparel, costume jewelry, instruments, cabinet works

NOTE: The above includes only plants on which data is available. There are, of course, many other types of manufacturing in each class.

It is recognized that there are no positive dividing lines between the three prospect groups. It is also recognized that there are many other types of plants which are not covered in the tabulation, since survey data was not received on all the types requested.

One of the most important facts brought into view by this survey was that in nearly every instance, the load factor for lighting was higher than it was for the power usage. The following shows the average monthly load factors for the three different classifications:

	Plants operating 8 hrs per day, monthly load factor	
	Power	*Lighting*
Poor	20.6%	27.0%
Medium	23.0%	29.6%
Good	25.3%	28.1%

Note that in each of the three classes the lighting load factor is higher than for power.

The above tabulation includes only those plants working one 8-hour shift daily. On this basis the theoretical maximum load factor (including Saturday and Sunday) would be 33.3 per cent. It is significant that in each of the three classifications, the lighting load factor approaches the maximum possible usage.

This is more clearly brought out when a comparison is made of the ratio of the lighting demand to the total demand, and the ratio of the lighting kwhr to the total kwhr in the three different classifications.

	% of Kwhr Usage		% of Total Demand	
	Power	*Lighting*	*Power*	*Lighting*
Poor	90.8	9.2	94.0	6.0
Medium	72.3	27.7	78.5	21.5
Good	50.2	49.8	51.7	48.3

A look at separate light and power recording charts helps us to gain a better understanding of why, in general, lighting load factors are higher than power load factors. Fig. 3 is the one-week record of the demand of a small fiber container manufacturer and the charts are for the week in which the highest demands during the monthly billing period occurred.

The lighting maximum demand during this weekly period was 15 kw as compared to the power demand peak of 30 kw, putting this plant in the "good" category. Lighting monthly load factor was 30.7 per cent and for power, 14.9 per cent. In order that differences in load characteristics might be more easily seen, the hourly demands for the 24-hour period in which the peak power and light demands occurred were plotted to the same scale (see Fig. 4). An examination of this chart shows that the lighting load factor in this plant (which operates one 8-hour shift) is greater than the power load factor. (Solid line is lighting and dotted line is power).

The reasons for the better load factor with lighting are:

1. Plant lighting was put into use before the major power load and continued in use after the power usage ended in the afternoon.

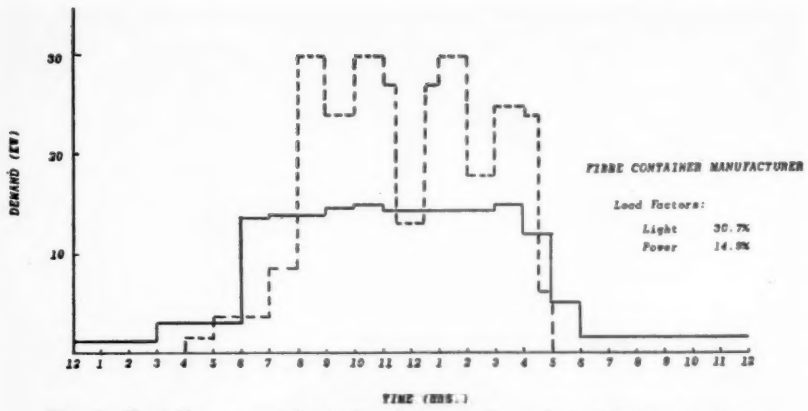

DEMAND (KW)
30
20
10
FIBRE CONTAINER MANUFACTURER
Load Factors:
Light 30.7%
Power 14.8%
12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12
TIME (HRS.)

Fig. 4—Peak Power and Light Kw Demand From Fig. 3 Plotted to Same Scale Over 24-Hour Period

Solid line represents lighting; dotted line, power

2. The use of the plant lighting continued on during the noon hour whereas the power load dropped off about 50 per cent.
3. Lighting kw demand was practically constant from 6 a. m. until 4 p. m. compared with the variable demand established by the power load.
4. About 10 per cent of the lighting demand is used during the non-working hours for clean-up and maintenance as well as for plant protection.

These conclusions also help to explain why the monthly lighting load factor is better than that for power as shown in Fig. 5 representing the operation of a coffee roasting, grinding and packaging plant. This plant fell in the "medium" class as the lighting demand was 20 kw compared with the 88 kw power demand. Fig. 6 shows hourly demands plotted for one 24-hour period. It can again be seen that the reasons for the lighting load factor being 28 per cent while power was only 22.3 per cent were more hours use each day, more constant demand, and use during non-working hours.

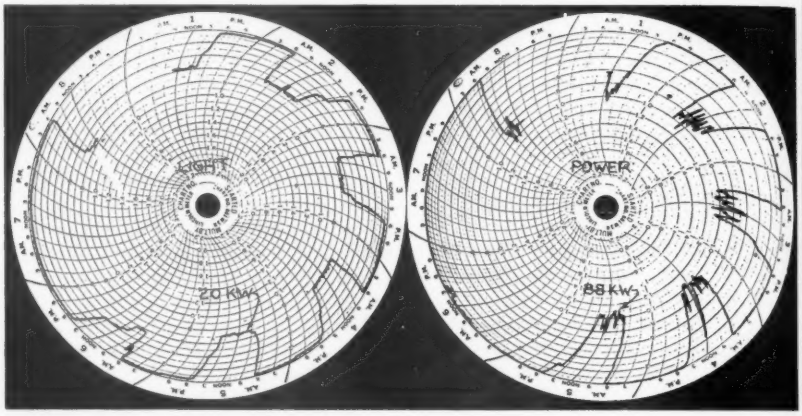


Fig. 5—Light and Power Kw Demand Charts of Coffee Roasting, Grinding and Packaging Plant for One Week Period

The lighting survey, in addition to the factors already discussed, also requested data as to the total present connected lighting load (kw) as well as the loads that would be on the lines if the lighting were brought up to recommended levels. These data help to provide a clue to the magnitude of the lighting sales potentially available if we are willing to energetically promote proper lighting.

Although many companies have induced industrial plants in their electric service areas to relight to adequate levels of illumination, too few of us, it is believed, have had our sales research organizations evaluate the lighting energy sales potential available within our areas. It is believed that the figures resulting from the survey will in some measure provide a basis for measuring this potential.

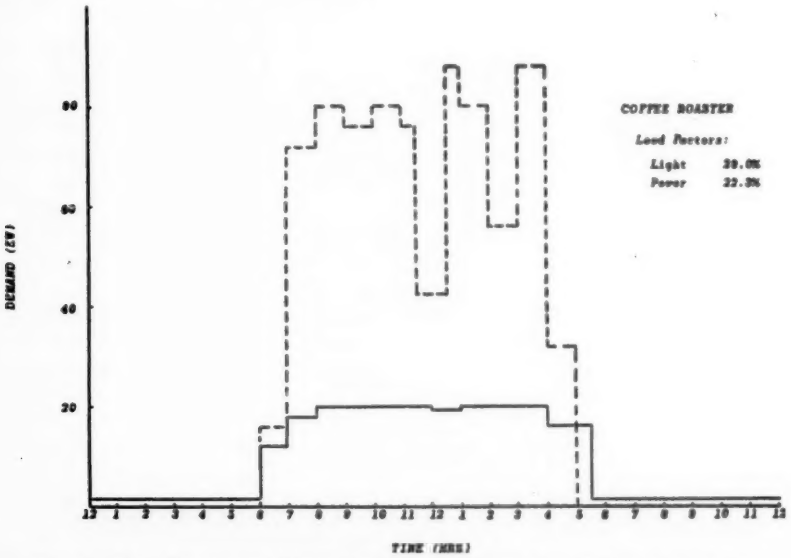


Fig. 6—Peak Power and Light Kw Demand From Fig. 5 Plotted to Same Scale Over 24-Hour Period

Solid line represents lighting; dotted line, power

	Poor	*Medium*	*Good*
Total present connected lighting load (average per plant), kw	13.8	45.9	74.7
Load if lighting is brought up to standard (average per plant), kw	31.7	89.2	94.8

	Poor	*Medium*	*Good*
Potential load increase per plant, kw	17.9	43.3	20.1
Average sq ft per plant	17,100	45,800	45,500
Present watts per sq ft — average	0.81	1.00	1.64
Potential increased watts per sq ft — average	1.04	0.95	0.44
Total watts per sq ft with recommended levels	1.85	1.95	2.08

It can be seen that in those plants where the ratio of lighting kw to total kw is highest, that the lighting levels are better. This is indicated by the higher values of "present watts per sq ft" in the "good" classification. It is very interesting to note that the average lighting load for proper lighting based on the average of all the plants surveyed as indicated by the last line is about 2 watts per sq ft for all types.

You may thus determine your own total potential industrial lighting sales for general lighting by totaling the square foot areas of plants not yet properly lighted and applying the value of 2 watts per sq ft as an objective.

Better Light, More Use

The survey brought out the fact, which may be surprising, that in different plants making the same type of product, those which were lighted to higher levels used that illumination an appreciably greater percentage of the time. It seems reasonable to assume that in plants where the artificial illumination is poor, there is little inducement for employees to make use of the artificial lighting provided since it contributes so little to the illumination available through windows and skylights.

Having established that the need for industrial lighting load is important to the future of our companies and that there is a large potential market, some consideration may well be given to an organized program to help us sell our prospects. Although we are all perhaps familiar, in general, with such programs, re-emphasis may help to stimulate our thinking.

Plan your Industrial Lighting Program:

1. Size up your potential market
2. Sell your Power Salesman on the value of this field for increased load
3. Train Power Salesmen in the fundamentals of Lighting and lighting salesmanship
4. Support their efforts through promotional activities, such as specialized mailing pieces, campaigns, cooperative activities with jobber salesmen, and other media. In this connection, we should not overlook the material to be made available through the EEI Planned Lighting Program.

In proceeding with our individual programs, I think that we all may as well face the fact that the days of enormous individual loads and mushrooming plant expansions are waning. We may as well recognize that it is going to take promotional and sales effort of the highest type to add new load as well as additional use of existing load.

The time for promoting and selling industrial lighting is now. LET'S GET TO IT.

1950 — The Year for More Aggressive Selling

(*Continued from page* 120)

for the *first time,* about the cheapness and value of Calapco service, and offered all the helps of our company in selecting and operating their appliances to obtain the maximum economy, convenience, and cleanliness. . . ."

Pennsylvania Power and Light Company has been selling aggressively for three years with good results. Despite increased sales budgets, sales cost per dollar of revenue has been lowered. They think of sales dollars as an *investment* rather than an *expense.* Recognizing the definite change to a buyer's market, with greater competition for the available purchasing power, they have stepped up their entire selling program in 1950. Residential Department personnel is being increased 25 per cent, and coverage in commercial, industrial, and farm markets is being expanded to keep pace with customer growth.

Prize Safari

Union Electric Company at St. Louis, as part of an enlarged sales program, including the greatest advertising backing they have ever given appliance dealers, announced a Prize Safari for Salesmen of Electric Range and Water Heater Distributors and Dealers. It's a humdinger with substantial prizes for sales made between Feb. 1 and May 31, inclusive.

Northern States Power Company is increasing its residential sales force 28 per cent this year, and its commercial force 20 per cent. A Planned Lighting Program is in progress throughout its area in cooperation with North Central Electric Industries, which is, in effect, their electric league.

Detroit Edison has gone into high gear on a 5-year, $3 million electric range program. It is based on the premise that the range is a key appliance which paves the way for other appliances and increases the ability to sell electrical living in general and that, because of this, heavy promotion costs are justified. Effective March 20 and for 10 months, the company will provide free wiring, including both entrance and circuit, where a range or clothes drier is installed.

It has gone into range merchandising throughout its area, but with the particular objective of developing the mass market in heavily populated metropolitan Detroit, where range saturation is lowest. Its promotion will include weekly newspaper ads, television, use of 180 billboards, and dealer cooking shows. Its 5-year objective is to add 120,000 electric ranges to its lines, bringing saturation up from 26 to 37 per cent.

Despite the fact that not all companies spend as much as they should on sales, that sales forces are too small and too poorly trained, and that many of us do not know where we are going on sales, the trend seems clear enough. It is forward and upward.

The trend is toward selling that will make us stronger *at a time when we must be strong;* the trend is toward selling that will bring more of the benefits of electricity to our customers, making our service still more valuable to them; the trend is toward selling that will make more opportunities for everyone in the industry, making it easier to attract and hold competent people. *The 1950 trend is toward more aggressive selling.*

The Lighting of Sunbury Steam Electric Station

By W. B. Morton

Pennsylvania Power & Light Company

A paper presented before the Electrical Equipment Committee, EEI, Cincinnati, Ohio, February 14, 1950

NO one will dispute the statement that amazing progress has been made in the science of illumination during the last 25 years. Unfortunately, the lighting of power stations for many years did not keep pace with these developments. Power stations were haphazardly lighted, and plant lighting was seldom in keeping with the high standards of illumination recommended by electric companies for other similar industrial applications.

Improvements in Station Lighting Design

In the past few years, greater attention has been given to this important phase of station design, and the lighting of many of the industry's newer stations shows outstanding improvement over stations built only a few years ago. We feel that Sunbury Steam Electric Station of Pennsylvania Power & Light Co. is representative of these more modern station lighting designs. In addition, Sunbury offers some innovations in application of light and some new benchmarks of illumination levels which we hope will contribute to further progress in the technique of lighting generating stations.

Sunbury station is located near the town of Sunbury on the Susquehanna River in Central Eastern Pennsylvania. This location lies in the western section of the 29-county area served by the Pennsylvania Power & Light Co. The initial installation comprises two 75,000 kw turbine-generating units, now in operation, with construction proceeding on a third unit of 100,000-kw capacity. The ultimate development of the station contemplates a total of six turbine-generating units, aggregating 550,000 kw of capacity.

In physical scope, the initial project covers a plot of ground over two miles long and over a quarter-mile wide. The plot comprises three general areas—a million-ton coal storage, handling and reclaiming area, a general operating area, and an ash disposal area.

As you all know, the main plant buildings of a power station with their complex machinery and piping areas present a major lighting problem in themselves. At Sunbury, (Fig. 1), there are, in addition to the main buildings, nine miles of railroad trackage; four miles of paved roadways; two double bus 66-kv substations (with a 132-kv substation now under construction); over a mile of coal conveying and handling runways with three miles of conveyor belts, mostly under cover; and a total of seventeen outlying buildings of varying kinds, including a screen house, water treatment building, a car dumper having a pit of several elevations to a depth of 65 ft below grade, various coal processing equipment buildings, a large building for thawing whole trains of loaded coal cars, a locomotive repair building, an outdoor substation control building, a large office and service building, a scale house and gate house.

A scale model (Fig. 2) was constructed during early design stages for general design and layout purposes, and for training and instructing operating personnel. It also proved an invaluable aid in the laying out of the lighting of these buildings. Exact reproduction of the finished boiler house and of the turbine room with all equipment located to scale, permitted complete visualization of each proposed lighting design before the final plans were drawn up.

Basic Lighting Requirements

The basic requirements established for the lighting of the project were simple requisites of good lighting in conformity with the modern conception of illumination necessary for the task and for human comfort. This required establishing illumination levels higher than those generally accepted as minimum for generating stations. Efforts were directed toward eliminating disturbing brightnesses, bothersome reflections, and the avoiding of what we have termed "cavern effect," to describe a design that uses high brightness sources contrasted against almost total darkness. Such a system tends to blind an observer when looking from a lower elevation to a higher elevation. This

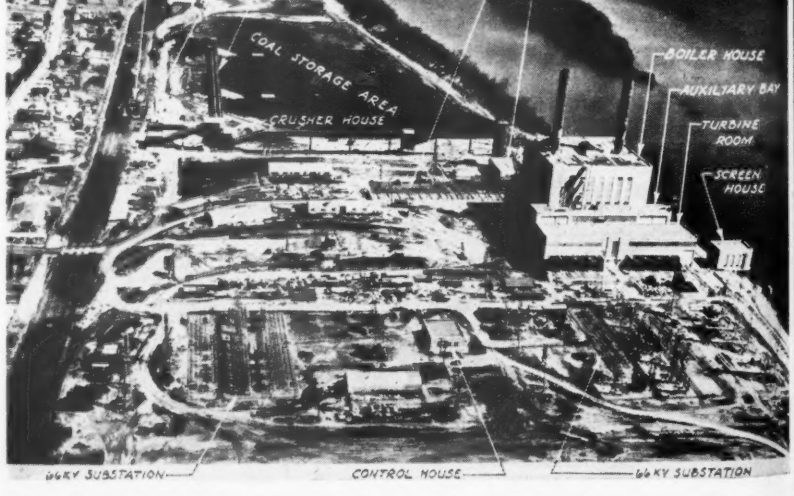


Fig. 1—General Plan of Operating Area of Station, Showing Scope of Project

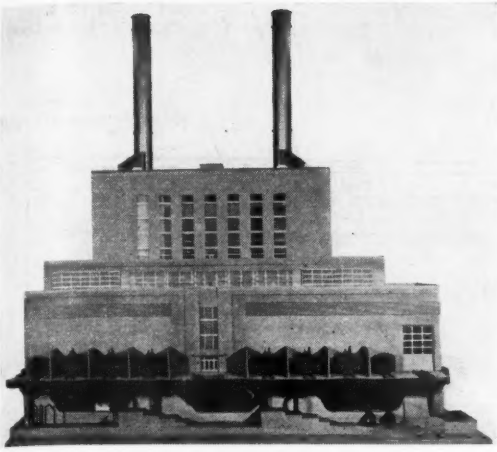


Fig. 2—Scale Model of Main Station Building
The model was constructed so that sides are removable, and it is separable into sections for better viewing of interior, which contains piping and equipment to scale

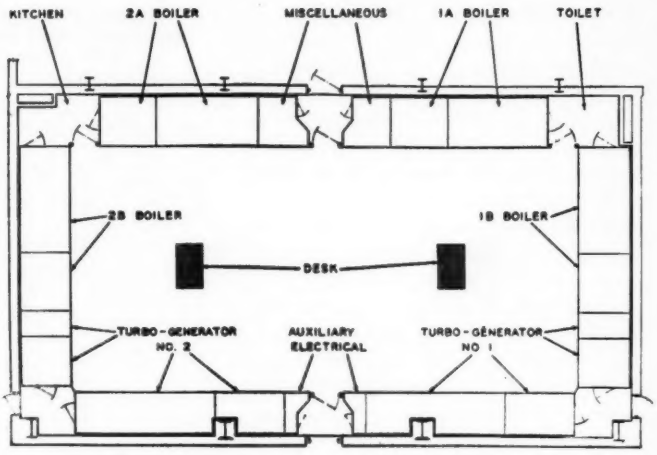


Fig. 3—Plan of Centralized Control Room in Plant
Switchboards on all sides of the room have accentuated the lighting design problem

meant utilizing some upward components of light to illuminate overhead areas and reduce this high brightness contrast.

Intensities adequate for all classes of work were established. The general intensity strived for throughout the station was 25 foot candles except for 15 ft-c in walkways, passages and similar locations. In control rooms, low brightnesses and vertical intensities of 40 to 50 ft-c were specified which resulted in 115 to 125 ft-c on horizontal surfaces. Other values specified were 50 ft-c for turbine room, for offices, and for shop general areas, 125 ft-c of localized lighting for benches in shops, 75 ft-c for laboratories, 20 ft-c for locker rooms and 10 ft-c for switches in outdoor substations, with ½ ft-c ground illumination. These are maintained design intensities. Actual readings are in some cases slightly higher and in others slightly lower than the design values.

In all areas of the plant, special care was given to the painting problems with efforts made to avoid dark surfaces. Both exterior and interior partition walls are of a light green tile, and equipment throughout the plant was painted some form of light green, light gray, or a light buff color, except where items such as turbine room crane are painted a "caution" yellow for safety or other reasons. Floor tile is a light quarry red except in control rooms where the tile is a light marble shade. In all designs of offices, control rooms, laboratories and such places, where personnel are stationed continuously, the health and comfort of the personnel were predominant in selection of pleasing colors, providing air conditioning, high-level glareless illumination and glass-block wall panels for maximum admission of daylight.

The most important areas to be lighted were the two large centralized control rooms. One is in the plant where nearly all plant operations (except the generator) are controlled. The other control room is in the outdoor substation control building and controls the generators and all outdoor substation facilities. The plant control room (Fig. 3), is 60 by 50 ft with switchboards on all room sides. In one half of this room is the control of No. 1 generator, with its associated 1A and 1B boilers. In the other half is the control of No. 2 generator with its associated 2A and 2B boilers. Control of auxiliary power is located between the two main control areas. The room is air conditioned. There is an electric kitchen at one end of the room, and a toilet and lavatory

AVERAGE DESIGN ILLUMINATION LEVELS

AREA	FOOT-CANDLES
GENERAL AREAS	25
WALKWAYS, ETC.	15
CONTROL ROOMS (VERTICAL)	45
CONTROL ROOMS (HORIZONTAL)	120
TURBINE ROOM	50
OFFICES	50
SHOPS - GENERAL	50
SHOPS - BENCHES (LOCALIZED)	125
LABORATORIES	75
LOCKER ROOM	20
OUTDOOR SUBSTATION (DISC. SW.)	10
OUTDOOR SUBSTATION (GROUND)	.5

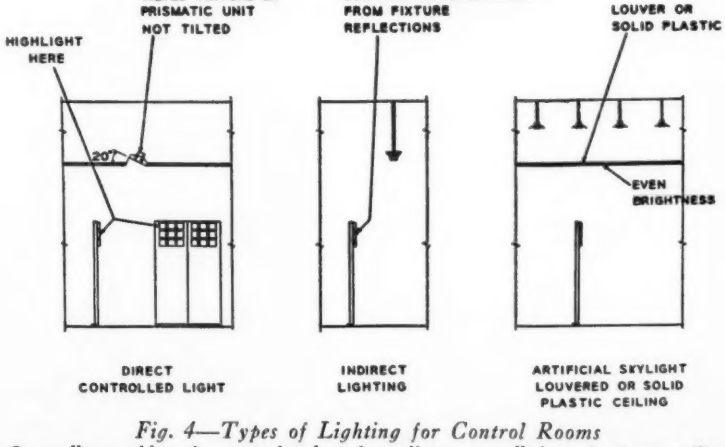


Fig. 4—Types of Lighting for Control Rooms
Generally speaking these can be classed as direct controlled, or luminous ceiling (indirect, louvered ceiling, solid luminous ceiling)

at the other end behind the switchboard area.

It appeared to us that the basic objective in the selection of the control room lighting was to provide adequate illumination on the instruments and devices on the switchboard, on the premise that if the vertical lighting would be adequately designed, the horizontal intensities would be ample for the desk work normally performed. We reasoned that an adequate design should provide clear visibility of instrument scales free from reflected glare in instrument fronts; it should have uniform intensity on the switchboard, and minimum of brightness difference in the remaining areas of the room.

As all control room lighting designers know, the problem of light reflection in instruments is the most difficult one to solve. Any source of light for switchboard illumination will be reflected in the glass faces of ordinary switchboard instruments. If this is a direct source, and when locating the fixtures an angle of incidence is maintained that is less than the line of the operators vision, no problem will result when viewing the instruments directly from in front of the board.

However, when the light source is placed close to the vertical face of the switchboard to obtain satisfactory angle of incidence, this will in many cases produce some shadows on instrument scales, and to some degree reduce visibility of some types of switchboard nameplates. If the brightness reflection on the glass instrument front is of even intensity, that is, without any variation in brightness, such as would be obtained from a solid white ceiling used as a light source, and the intensity of the brightness reflection in the glass is not much greater than the intensity on the instrument scale behind the glass, any highlight or reflection in the glass will be mitigated to a degree that little interference with reading of scales will result.

Then we can say that the problem of reflection in the glass fronts can be reduced to a minimum by using some form of artificial skylight lighting scheme such as a totally indirect, a louveral, or a solid diffusing glass or plastic design. The totally indirect, while effective in reducing reflections, presents a problem in multiplicity of fixtures required to provide the high intensities desired, and the fixtures themselves tend to cause reflection patterns

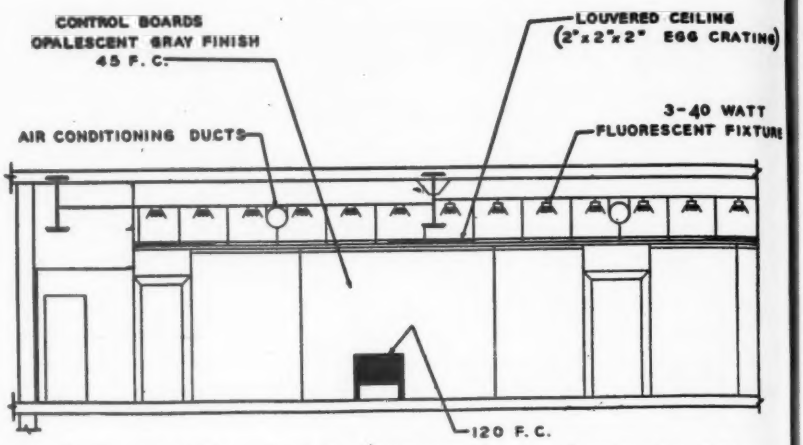


Fig. 5—Section of Centralized Control Room Showing Construction of Louver Ceiling

Louvers are 11 ft above floor in one control room, 9 ft, 6 in. in the other. Diffusing ventilating ducts above louvers reduce air velocity to negligible point resulting in minimum maintenance of louvers

in the glass fronts, in contrast against the light ceiling. Thus it appeared to us that for the illumination levels we desired, and for reasonable freedom from annoying reflections, a light source of either a solid diffusing glass or plastic ceiling or a louver ceiling was the best answer.

The shadows on the scales can be practically eliminated by use of all-glass instrument front such as the type recently developed by General Electric Co., or by use of slotted-top instrument cases such as were used at Sewaren, and described by Mr. Taylor in the Schenectady meeting (EEI BULLETIN, November, 1949, p. 426). These are admittedly not ideal solutions as curved edges will cause some minor light reflection. The manufacturers are still working on the problem.

All of the foregoing conclusions were verified by the construction of a mock-up, with simulated switchboard panels, mounted on movable bases, and located in approximately the position occupied by the switchboards in the control room. Various types of direct luminaires were mounted in several positions. Experiments were made with various forms of louvers and shields on these units, but all attempts to avoid reflections from a row of light sources appearing in instrument fronts of the panels at right angles to that source were unsuccessful.

The solid plastic ceiling design was considered, but this design did not appear to us as one lending itself as well to application of acoustic treatment and air control in the air conditioning system as the louver ceiling. The plastic sheets tend to become electrostatically charged and collect dust, and the efficiency of such a system drops sharply with this dust accumulation. Wax treatment will

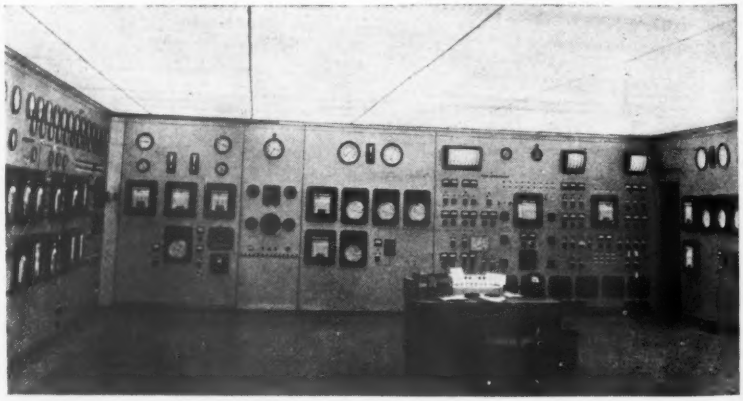


Fig. 6—View of One End of Plant Centralized Control Room

Illumination values of 45 ft-c on vertical faces of switchboards and 120 ft-c on desks obtained from three 40-watt fluorescent luminaires above ceiling

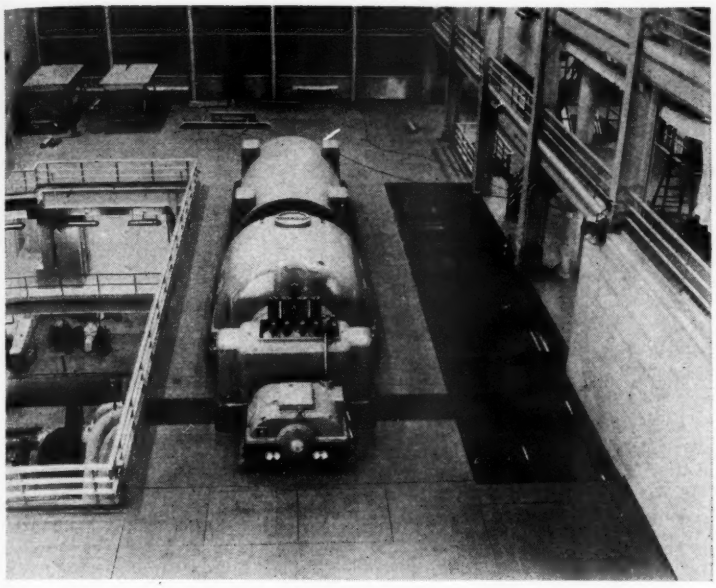


Fig. 7—View of Turbine Room Floor
Here 50 ft-c is provided from combination mercury-incandescent, one-to-one ratio high-bay sources

alleviate but not entirely eliminate the condition.

The design adopted for both control rooms at Sunbury is a complete suspended ceiling of 2 in. x 2 in. x 2 in. plastic eggcrate louver construction, mounted 11 ft above the floor (see Fig. 5). The physical construction provides for location of continuous ventilating ducts that distribute the ventilating air evenly throughout the room to minimize turbulence that would cause the louvers to collect dust. This air is discharged under the switchboard through a continuous aperture created by mounting the switchboard on rubber shock mounts.

The effectiveness of this scheme has been demonstrated after a year's operation. In one control room the louvers have not been cleaned or disturbed since installation, and there is no indication that they will need cleaning in the near future. In the other control room, they were cleaned recently following some structural reconstruction, although not noticeably dirty. It should be pointed out that dust accumulation on a louver ceiling has much less effect on efficiency than dust accumulation on other types of luminous ceilings.

Louvered Ceiling Lighting

Although we were prepared to install acoustic treatment if needed, experience has indicated that it will not be required. Illumination is provided from three tube, 40-watt fluorescent luminaires on 3 ft by 5 ft centers mounted 2 ft above the louver ceiling. Short skip sections added between luminaires provide the effect of a continuous wiring trough. Incandescent reflector lamps mounted on the skip sections at 4-ft spacing, 2 ft in front of boards, provide adequate emergency lighting. Sunbury, incidentally, was the first generating station to adopt the louvered ceiling design for control room lighting.

This design provides illumination values of 40 to 45 ft-c on the vertical surface of the switchboards and about 115 ft-c on the operators' desks. Switching of the lamps was designed so that one, two or three tubes of each fixture can be selected from three conventional toggle switches to give roughly 40-, 80-, or 120-ft-c illumination as desired. This switching is rarely used in this room, the operators preferring full intensity illumination.

Control Room Colors

The switchboards in this room as well as in the entire plant are finished in opalescent gray. All instruments have white scales with black letters for improved visibility. Nameplates are of laminated plastic with black lettering on white background, likewise for better visibility. The substation control room walls are light green tile and the floors in each room a light marble finish.

In general, supplementary lighting was not provided for any of the thirty or more local switchboards distributed about the plant. It was felt that the high levels obtained from the general lighting system would provide satisfactory brightness levels on these infrequently operated boards, except in one or two cases where interferences require that a separate light source be provided at the panel.

The complications of centralized control with intricate wiring and piping to instruments makes it necessary to provide adequate back-of-board lighting. Too often this item is neglected. Ample lighting for maintenance is accomplished behind the turbine board by a continuous row of two-tube 40-watt fluorescent units with 360 degree coverage.

Several possible methods of lighting the turbine room were considered, including louveral ceiling, cold and hot cathode fluorescent tubing designs, high-bay incandescent, mercury tubes, and combination mercury-incandescent high-bay units. Some of these were tested and comparisons made in two of our generating stations. The one-to-one lumen ratio, combination mercury-incandescent high-bay unit had the most appeal and was selected for the job. This design provides in the order of 50 ft-c maintained at floor level. This design is used in some of the yard service buildings also.

Turbine Room Lighting

The scheme utilizes groups of two 400-watt, 16,000 lumen mercury lamps in combination with one 1500-watt, 33,000 lumen incandescent lamp per outlet mounted in three rows on 23 ft by 24 ft centers at a 42-ft mounting height. The luminaires are serviced from the crane and suspended by a channel bracket which was fabricated on the job.

The rows of lights are controlled separately by contactors which are operated from switches at the control room on the turbine room floor elevation. Here as in other locations in the plant, illumination is provided against the ceiling in order to reduce brightness contrast and to show the architectural appearance of the ceiling to advantage. The backing was left off the mercury units which provides a soft green glow on the ceiling with pleasing effect. The backing was retained on the incandescent units because of high heat generated.

Use was made of the upward component of light in all areas for illuminating overhead surfaces, to eliminate "cavern effect." This could best be accomplished in the boiler house by use of prismatic glass luminaires with 200-watt lamps.

Fig. 8—Use of Prismatic Reflector-Refractor Units in Boiler Areas to Eliminate "Cavern Effect" in Overhead Areas

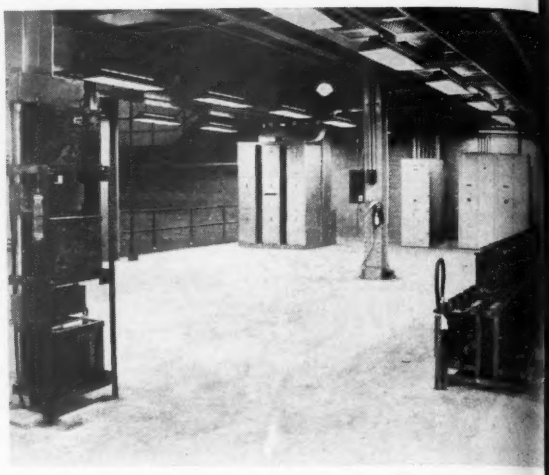


Fig. 9—Slotted Industrial Reflectors With Three 40-Watt Fluorescent Tubes Are Used in Most Areas of Auxiliary Bay Turbine Room Lower Elevations and in Water Treatment Plant to Eliminate "Cavern Effect"

In a few locations where ceiling heights are 25 ft or more, a high-bay prismatic glass unit employing 300 to 1000-watt incandescent lamps has been used. The high-bay units are serviced from lowering-type hangers. In the car dumper house, the coal crusher house and in the conveyor system, where seeing tasks are minor, the prismatic glass-enclosed units are used to maintain an intensity of 15 ft-c.

For the auxiliary bay areas, a fluorescent, industrial-type unit has been used with slots in the units to illuminate the ceilings (Fig. 9), which accomplished the solution to the basic problem of eliminating "cavern effect" in those areas, and facilitating the following of conduits, cables in trays and piping. This unit is also used in the water treatment plant. According to the fixture manufacturers, Sunbury was the first power station to use this slotted unit.

The office and service building is a general purpose building housing Superintendents' offices, general offices, mechanical and electrical repair shops, locker rooms, laboratory and large assembly room. The ceiling-mounted, opal glass-enclosed fluorescent luminaire is used in all offices and in the assembly room. Industrial-type fluorescent luminaires are used in the repair shops and storerooms.

Outdoor Lighting

The outdoor lighting falls in three classifications: Substation lighting, general floodlighting, and roadway lighting. The substations are lighted with prismatic refractor-type substation units mounted on standards and brackets in accordance with manufacturers' recommendations. General illumination is good, and it can readily be observed whether or not the high voltage switches are open or closed.

It is possible, however, that some additional supplementary lighting may later be considered desirable for closer inspection of higher parts of structures. A number of very satisfactory installations have been made elsewhere on our properties with the inexpensive PAR-type reflector lamps with excellent results, and if operating experience at Sunbury indicates supplementary lighting necessary in these substations, a few of these reflector units can be added at low cost.

Floodlighting

Floodlighting is confined almost entirely to the far end of the railroad yard and to the coal storage area where 1000 and 1500-watt wide-and-narrow beam, weathertight floodlights are used, so that if required coal may be kept moving regardless of day or night. The floodlights are mounted at 35-ft height in groups of two or three, on poles spaced on 200-ft centers. The thaw shed was designed for floodlights only, located at one end of the building, for those few occasions when they might be entered, as ordinarily there is no visual task in this building.

Almost four miles of roadway are necessary on this project connecting the various areas and buildings. These roads are lighted in accordance with the American Standard Practice of Street and Highway Lighting. The roads from the main gate house to the plant will each pass the future 220,000-v substation, the two 66,000-v substations and the office building. In this area where there are high-voltage lines, steel poles with underground supply are used. The 6000 lumen lamps are spaced on 120-ft centers. Past this section, toward the coal storage area where there are no high-voltage lines wood pole overhead supply is used. The street lights are all supplied from conventional 6.6-amp series circuits. The system is operated from photoelectric control.

Emergency lighting throughout the plant is from 125-v storage batteries located on open racks, and contemplates sufficient illumination in operating rooms to perform emergency operating procedure.

In other areas only sufficient lighting is required to permit passage between operating areas. Exit lights are provided at all stairway entrances. In addition to the d-c emergency battery supply, the station lighting is protected by interspersing of supply circuits in important areas so that the loss of any supply to an area will not result in the loss of more than 50 per cent of the lighting intensity in that area. Only in the case of a major station outage will the emergency d-c source be required.

Generating Station Lighting Problems

To summarize our conclusions I would say briefly that great strides are being made in the lighting of generating station properties, but the problems are so complex that much still remains to be done. For the lighting of general areas

Fig. 10—Night View of Entrance Roadway Into Plant Looking Over One of the 66-Kv Substations

It is highly desirable that the brightness contrast between luminaire and background be kept to a minimum. This can be satisfactorily accomplished by using slotted industrial fluorescent reflectors, and prismatic reflector-refractor units to eliminate what we have termed "cavern effect," and also by using properly selected paint colors and careful selection and location of fixtures.

The utilization of the upward component of light to illuminate ceiling areas, particularly in boiler rooms, not only improves the lighting by eliminating "cavern effect" but it also helps promote cleanliness, tends to create cheerful atmospheres, and, an important factor, it facilitates maintenance of equipment such as cables, conduit piping, etc., in the overhead areas.

For control rooms and high-intensity control board lighting with a minimum of annoyance from specular reflections in the instrument scales, in control rooms where switchboards are located at right angles to each other, the best results will be obtained from some form of luminous ceiling, preferably the all louver type used at Sunbury. Instrument scales should be white with black lettering for greatest visibility. Switchboards and all room areas should be painted a light color with minimum of brightness contrasts.

For very high bay areas, such as turbine room and certain boiler areas, the one-to-one lumen ratio, combination mercury-incandescent high-bay units with prismatic glass, provide excellent quality of illumination. Negligible stroboscopic effect is noticeable with this combination.

Interspersing of supply circuits throughout the plant provides insurance against complete loss of illumination in any one area and protects against costly errors or accidents in machinery areas such as coal conveying systems.

Roadway lighting, often neglected in generating plant design, is highly important for safety and for protection of property and should not be slighted. Attractive roadway lighting into the plant is a strong influence in good public relations.

Finally, the lighting of a modern generating station is a major engineering undertaking that justifies the same careful engineering attention that is given to other engineering features. Moreover, it affords the utility an excellent opportunity to demonstrate to employees and customers alike the benefits and advantages of well engineered lighting.

Credit and Collection Experience of the Gas and Electric Industries

(*Continued from page* 136)

Discontinuance Notices Increase

The number of Discontinuance Notices issued continues to show a greater increase than in either of the previous reports. All sections of the country showed increases with the exception of the West North Central area. The reduction in the West North Central area can be attributed to the lower outstanding dollars.

Disconnections for Non-Payment

The number of meters disconnected for non-payment again increased, at a slightly higher rate than for the previous period. Disconnections for the first six months of 1949 in turn showed a percentage increase over the first six months of 1948, as did those for the last six months of 1948 compared with the corresponding period of 1947. This trend undoubtedly reflects generally adverse economic conditions.

Deposit Outstanding

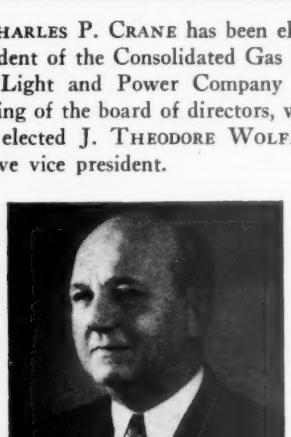
The increase in deposit dollars continues but at a slightly lower rate than for the previous period. The amount of new deposit dollars is increasing as the result of unstable economic conditions. The East North Central and Pacific States areas have reduced their deposit dollars, however, in line with the policy that has been established by many companies throughout the country.

General Increase in Accounts Charged Off

The increase in the number of accounts charged off and the Net Charge Off continues at the same rate as shown by the previous surveys. The Mid-Atlantic area is the only section of the country to show a decrease. While this condition is not encouraging, the charge-off figures are not yet alarming, since these increases are based on generally low charge-offs during the initial base period.

PERSONALS

CHARLES P. CRANE has been elected president of the Consolidated Gas Electric Light and Power Company at a meeting of the board of directors, which also elected J. THEODORE WOLFE executive vice president.



MR. CRANE

The company also announced the re-election of RALPH L. THOMAS and HERMAN L. GRUEHN as vice presidents and FRANCIS E. RUGEMER as treasurer. AUSTIN E. PENN, ABBOTT L. PENNIMAN, JR., and JOHN H. WOLFE were elected vice presidents, the latter succeeding HENRY R. COOK, JR., whose retirement has been announced. OTIS E. SMITH was elected secretary, a position formerly held by Mr. Penn.

Mr. Crane, formerly executive vice president, succeeds as president WILLIAM SCHMIDT, JR., who was re-elected chairman of the board and chief executive officer of the company. Mr. Schmidt has held both positions since 1946, but declined re-election as president in order to permit the advancement of other officers of the company.

Mr. Crane has been associated with the Consolidated Company since 1910, having received his early training in the electric utility business under the immediate direction of the late Charles M. Cohn, who was then vice president and later succeeded to the presidency and chairmanship. As a consequence of his lengthy experience in the administrative affairs of the Consolidated Company, Mr. Crane was elected vice president in 1938 and in 1946 became executive vice president, a director of the company and a member of its executive committee.

Mr. Crane is also a director of the Baltimore National Bank, the United States Fidelity and Guaranty Company and the Industrial Building Company of Baltimore. He is a director and past president of the Maryland Utilities Association and a member of the board of the Baltimore Chapter, American Red Cross. Mr. Crane is a graduate of McDonogh School and later studied accounting and corporation finance.

Mr. Wolfe has been with the company since his graduation from the Harvard Business School in 1932, was appointed assistant to the executive vice president in 1938, elected assistant vice president in 1942, and has been a vice president since 1946. A director of the Maryland Trust Company and the Provident Savings Bank, he is also vice president of the Baltimore Y. M. C. A. and last year served as general chairman of the annual Community Chest appeal.

Mr. Penniman first became associated with the company in 1911, serving initially as a draftsman, then as a testman, and later as an inspector in the Electric Division. From 1914 to 1937 he was superintendent of steam electric generating stations, in charge of plant operations, maintenance programs and economic studies in connection with old and new equipment. From 1937 to date, as general superintendent—Electric Operations, he had general supervision of design, construction, operation and maintenance of all electric property of the company. Mr. Penniman is a fellow of the American Society of Mechanical Engineers and also a Fellow of the American Institute of Electrical Engineers. He serves as a member of the Maryland State Board of Boiler Rules and is the Engineer Member of the Maryland State Board of Health. Between 1946 and 1948, Mr. Penniman was chairman of the Committee on Power Generation, Association of Edison Illuminating Companies, and is currently serving as chairman of its Stack Emission Subcommittee.

Mr. Wolfe studied at Iowa State College and the University of Wisconsin, where he graduated in 1912 with the degree of Bachelor of Science in Chemical Engineering. From cadet training in the Rockford Gas Light and Coke Company, Rockford, Ill., he advanced to superintendent of their gas manufacturing activities. During the first World War he was commissioned Ensign of the Navy and upon discharge entered the employ of the Consolidated Gas Electric Light and Power Company of Baltimore in 1919 as superintendent of gas manufacturing. Mr. was promoted to general superintendent of Gas Operations in 1938.

Mr. Penn attended Baltimore College of Commerce and University of Maryland Law School, becoming a certified public accountant and a member of bar in Maryland. Employed by the Consolidated Company since 1920, he became assistant secretary and assistant treasurer in 1939 and secretary and assistant treasurer in 1946.

ROY G. RINCLIFFE has been elected executive vice president and a director of Philadelphia Electric Co. He succeeds NEVIN E. FUNK, who is retiring.

Mr. Rincliffe joined the company in 1923 as an engineering assistant at Chester, Pa. He was named superintendent of gas production in 1927 and superintendent of gas manufacturing four years later. He served as purchasing agent from 1938 to 1941, when he was appointed manager of electric station operations. Since 1945 he has been vice president in charge of electric operations.

Mr. Rincliffe is on the executive committee of the Pennsylvania Electric Association and a member of a number of other industry associations, including the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, Electrical Association of Philadelphia, the American Gas Association, the Pennsylvania Gas Association, and the Franklin Institute.

Mr. Funk has served the company for more than 40 years and has been active in many national organizations. He is a past president of AIEE, a former regional vice president of ASME, and a member of the Association of Edison Illuminating Companies and PEA. He also is a past president of the Philadelphia Engineers Club.

Before joining Philadelphia Electric in 1907, Mr. Funk worked for Westinghouse Electric Corp. and the New York Central Railroad and taught at the Georgia School of Technology. He started with Philadelphia Electric as assistant foreman of station construction and later served as superintendent of Schuylkill station, operating engineer, chief engineer, assistant general man-

ager, and finally, from 1931, vice president.

Last year Mr. Funk spent several weeks in Europe as a member of a three-man board of engineers which established power exchange rates between Austria and the American, British, and French Zones of Germany. Inventor of the Funk oil sludge accelerator and the Funk oil water washer, he is the author of more than 40 technical papers.

American Gas & Electric Service Corp. has elected three new vice presidents, H. A. KAMMER, V. M. MARQUIS, and F. G. NAGELE.

Mr. Kammer, chief of the design and construction division since 1947, has been a director since 1948. He started with AG&E Service in 1924 as assistant design engineer working on high-tension substations and later became structural and construction engineer, design and construction engineer, and finally chief of the design and construction division. Before joining AG&E he worked for Western Electric Co., American Machinery & Foundry Co., Ford Instrument Co. and New York Edison Co. He is a member of the Engineering General Committee of EEI and of several technical societies.

Mr. Marquis, who is system planning and operating engineer, spent 5½ years with an a-c design section and with the central station engineering department of General Electric Co. before joining AG&E in 1928. During the war he was lent to the power branch of the Office of Production Management, which later became the War Production Board, where he was chief of the power division. He spent about one year as assistant chief of the division of transmission and hydraulic engineering of Pacific Gas & Electric Co. before returning to AG&E Service in 1946. Mr. Marquis has been a director of the company since 1948. He is a consultant to the National Security Resources Board's Office of Energy and Utilities and a member of the EEI Electric Power Survey Committee.

Mr. Nagele, purchasing agent for the service corporation and affiliated operating companies for the past eight years, started with AG&E Service Corp. in 1911. Before World War I he was in charge of expediting material and supplies for the Windsor power plant and assisted the utility branch of the War Industries Board on priorities. After his return from military service he entered the AG&E company's purchasing department as assistant to the purchasing agent.

Several new executives have been appointed by Consumers Power Co. following retirement of FRANK G. BOYCE, vice president in charge of electric production and transmission, and CLYDE E. ROWE, treasurer. L. L. BENEDICT has been elected vice president to succeed Mr. Boyce, and L. J. HAMILTON is the new treasurer.

CARL E. ARVIDSON as assistant general supervisor of electric production and transmission will aid Mr. Benedict, and WALTER C. SCHMIDT has been named assistant general supervisor of electric construction. Mr. Arvidson will retain his present position as general supervisor of electric construction.

Mr. Benedict joined Consumers in 1919 as superintendent of the western division. In 1945 he was made general supervisor of electric production and transmission. Before joining Consumers he was chief operating engineer of Michigan Power Co., Lansing. Mr. Benedict is a life member of the Grand Rapids Engineers Club.

Mr. Hamilton was with Consumers from 1911 to 1916 and returned to the company two years later in Grand Rapids, Mich. He went to the Muskegon division as chief clerk in 1920 and returned to Grand Rapids as chief clerk and manager of the securities department in 1922. In 1927 he became superintendent of accounting in the Kalamazoo division. Ten years later he went to the general office in Jackson and was made an assistant secretary in 1939. He has been active in the Michigan gas and electric associations.

Mr. Arvidson has been with Consumers Power and associated companies for 26 years. From 1937 to 1942 he was in the general engineering department of Commonwealth & Southern Corp. in Jackson. After naval service and a year in the general engineering department of Consumers Power, he went to New York in 1946 as assistant to J. A. Brown, then vice president of Commonwealth & Southern. He returned to Jackson a year later to become general supervisor of electric construction.

Mr. Schmidt joined Consumers Power in 1924 and has held various positions with that company and Commonwealth & Southern. Since 1943 he has been supervisor of the overhead line design section of Consumers' general engineering department.

Mr. Boyce started his business career in the foundry and machine shops of the Allis-Chalmers Manufacturing Co. plant in Milwaukee. Later he did construction work for Stone & Webster Engineering Corp.; was in charge of design, construction and operation of substations, transmission lines, and power plants for Milwaukee Electric Railway & Light Co., Milwaukee; and was electrical engineer for Goodyear Tire & Rubber Co. at Akron.

Mr. Boyce went to Consumers in 1917 as assistant manager of the production and transmission department and became manager in 1936. He was elected a vice president in 1937. A fellow and life member of the American Institute of Electrical Engineers, he also is a fellow of the American Society of Mechanical Engineers, and belongs to the Michigan Engineering Society.

Mr. Rowe had been with Consumers and predecessor companies for 44 years. In 1906 he became a bookkeeper for the old Commonwealth Power Co. in Jackson. In 1915 he was named assistant treasurer of Consumers Power and five years later treasurer.

In recognition of his outstanding work in the industrial development of Public Service territory and for the State of New Jersey as a whole, CLAYTON S. CRONKRIGHT, industrial representative, Sales Department, General Office, Public Service Electric and Gas Co., has been presented the Thomas N. McCarter Electric Award by President George H. Blake.

The Thomas N. McCarter Electric Award, a medal and certificate, is awarded annually to the employee in the Electric Department, either operating, commercial or sales, who has contributed most during the year toward the efficiency and progress of the department.

Serving the interests of the company, Mr. Cronkright has provided valuable counsel to the State Chamber of Commerce and has also served as special representative of the New Jersey Council of the State Department of Conservation and Economic Development. This work, in conjunction with his regular duties, has required utmost care, together with detailed knowledge of the factors affecting industrial plant location on a state-wide basis.

CLAUDE N. RAKESTRAW of The

Cleveland Electric Illuminating Company has retired.

A graduate of the University of Michigan in 1908, he spent the four years following in Utah and Idaho with the Telluride Power Company, the oldest of the pioneer hydroelectric companies.

He went to Cleveland with The Cleveland Electric Illuminating Company in 1912, and has been there ever since. During that time, until 1934, he was well known in transmission and distribution work, particularly in underground work. Since that time, he has been engaged in accident prevention work, and also in employee training.

He was active in the old N.E.L.A. Underground Systems Committee, and later in the Accident Prevention Committee of the Edison Electric Institute, as well as the Public Utility Section of the National Safety Council.

A. L. POLLARD has been promoted from general superintendent of operations to operating manager of Puget Sound Power & Light Co., Seattle. He succeeds CHARLES F. TERRELL, vice president and operating manager, who has resigned to become executive director of Nebraska Public Power System with headquarters in Columbus.

Mr. Pollard went to Seattle in 1930 from the Boston offices of Stone & Webster Corp., where he was a power engineer. He started with Puget Sound as a superintendent of steam heat. Later he became assistant general superintendent of light and power as well, and in 1935 the functions were consolidated to make him general superintendent of light, power and steam heat. He has been general superintendent of operations since 1945.

Mr. Pollard is a past president of the Electric Club of Washington and a member of the American Institute of Electrical Engineers and the Registered Mechanical and Electrical Engineers.

CONVENTIONS AND MEETINGS

1950

MAY

1-2 Prime Movers Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
1-2 Hydraulic Power Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
1-2 Accident Prevention Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
1-4 38th Annual Meeting, Chamber of Commerce of the USA, Washington, D. C.
2-3 Pennsylvania Electric Association, Industrial Committee, Bedford Springs, Pa.
2-3 Electrical Equipment Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
3 Missouri Association of Public Utilities, Joplin, Mo.
4-5 Oklahoma Utilities Association, Biltmore Hotel, Oklahoma City, Okla.
11-12 American Institute of Electrical Engineers, Great Lakes District Meeting, Jackson, Mich.
11-12 Public Utilities Advertising Association Annual Convention, Kansas City, Mo.
11-12 Pennsylvania Electric Association, Prime Movers Committee, George Washington Hotel, Winchester, Va.
15-17 Northwest Electric Light and Power Association, Business Development Section, Finlen Hotel, Butte, Mont.
15-18 54th Annual Meeting, National Fire Protection Association, Haddon Hall, Atlantic City, N. J.
16 Missouri Valley Electric Association, Annual Meeting, President Hotel, Kansas City, Mo.
23-26 National District Heating Association, Grove Park Inn, Asheville, N. C.
25-26 Transmission and Distribution Committee, EEI, Cosmopolitan Hotel, Denver, Colo.
25-26 Pennsylvania Electric Association, Transmission and Distribution Committee, Alexander Hotel, Hagerstown, Md.
31-June 2 Pacific Coast Electrical Association, Inc., Reno, Nevada.

JUNE

5-7 EDISON ELECTRIC INSTITUTE, Annual Meeting, Atlantic City, N. J.
12-16 National Association of Electrical Distributors, Annual Convention, Atlantic City, N. J.
12-16 American Institute of Electrical Engineers, Summer Meeting, Pasadena, Calif.
15-19 Canadian Electrical Association, 60th Annual Convention, Manoir Richelieu, Murray Bay, Que., Canada.
19-21 American Society of Heating & Ventilating Engineers, Semi-annual Meeting, Muskoka Lakes, Ontario, Can.
19-23 American Society of Mechanical Engineers, Semi-Annual Meeting, St. Louis, Mo.
26-30 American Society for Testing Materials, Atlantic City, N. J.

AUGUST

21-25 Illuminating Engineering Society National Technical Conference, Hotel Huntington, Pasadena, Calif.

SEPTEMBER

25-27 American Trade Association Executives Annual Meeting, Somerset Hotel, Boston, Mass.
27-29 Canadian Electrical Manufacturers Association Annual Meeting, General Brock Hotel, Niagara Falls, Ontario, Can.

OCTOBER

2-6 American Gas Association Annual Convention, Atlantic City, N. J.
3-5 American Institute of Electrical Engineers, Publicity Committee Meeting, District No. 2, Baltimore, Md.
11-14 International Association of Electrical Leagues, 15th Annual Conference, Copley Plaza Hotel, Boston, Mass.
16-20 38th National Safety Congress, Chicago, Ill.
17-21 National Electrical Contractors Association Annual Convention, Biltmore Hotel, Los Angeles, Calif.
23-27 American Institute of Electrical Engineers, Fall General Meeting, Skirvin Hotel, Oklahoma City, Okla.

NOVEMBER

8-10 Wisconsin Utilities Association, Electric and Gas Section, Schroeder Hotel, Milwaukee, Wisc.
13-16 National Electrical Manufacturers Association, Chalfonte-Haddon Hall, Atlantic City, N. J.
27-29 American Standards Association Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

Pioneer Work in Minnesota and South Dakota Rural Electric Projects

(*Continued from page* 129)

want to control any type of business they can make out a case that private business is not handling the situation properly. For example, Russia took over the dissemination of news because private news covering agencies were not giving the people adequate news.

While we realize that the development of rural electric service has meant a great deal to this country and we all have been in favor of it, even to the governmental assistance, we do feel that the development of duplicating generating plants and transmission lines by th R.E.A., which is being promoted to very large extent by organizations i favor of public power, may be anothe opening wedge into the field of nationa ization of the electric energy. This wa certainly not recognized originally as part of the program of developing elec tric service for farms through the R.E.A

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

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EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

(Continued)

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